2013 PERFECTRON Product Catalog

PERFECTRON

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About PERFECTRON

Headquartered in Taiwan, PERFECTRON focuses on providing wide-temp embedded computer solutions for industrial automation, process control, transportation, telecommunication and many other industries. PERFECTRON's drive toward innovative technological standards enables the company to offer a portfolio containing wide range of CPU modules in various form factors, as well as industrial motherboards, wide-temp fanless rugged systems, display solutions and computer-on-modules that can be implemented to withstand extreme environment conditions, shock and vibration.

Why PERFECTRON

Perfectron provides integrated services to increase the time-to-market advantage of your product. Our streamlined development process enables you to make efficient use of your available time, so you can focus on your core business. Our design and development expertise will transform your ideas into viable computing solutions to seamlessly integrate hardware and software.

Our extensive product portfolio includes CPU modules in various form factors, industrial motherboards, fanless embedded systems, panel PCs, display solutions, and computer-on-modules. We put a premium on customer satisfaction by delivering specialized computer solutions.

- **Full customization**
  We adhere to your design guidelines and specifications.
- **Exact calculations**
  We use exact calculations to certify the accuracy of each circuit and component.
- **Rigid quality control**
  We perform several industry standard tests to ensure the world-class quality of our products.
- **Balanced design**
  We invest in the research and development of superior layouts that balance thermal parts and align taller components.

Business Commitment

Technical Support

PERFECTRON places client satisfaction as the top priority and actively engages clients for the duration of product development to deliver on client needs. Paired with a complete FAE and RMA process, PERFECTRON holds firm the motto of "Access to the Best" to which clients have recognised PERFECTRON as the most dependable and reliable partner in the corporate industry.
As time and convenience of product returns and repairs are vital to clients, PERFECTRON strives to complete all RMA services regardless of the time of purchase. All RMAs are processed with top priority. With field application teams established worldwide, PERFECTRON provides response to technical support inquiries within 24 hours of notice. Customers can monitor the status of their product repair through online RMA tracking.

OEM/ODM Projects

Aiming to develop superior and cost-effective products for a demanding market, PERFECTRON has an established OEM/ODM team which is comprised of experienced and knowledgeable experts. The mission is to swiftly develop prototype products that satisfy customers' expectations and finalised end-product.

Professional Technique

PERFECTRON's commitment to innovation and reliability, security, and product performance has garnered a leading position in the current market for its delivery of highly acclaimed pioneering products. The research and development team comprises of experts from a wide range of fields capable of developing high-speed, reliable storage technologies.

Repair & Maintenance

PERFECTRON values and understands the importance of quality support and service. This is the guideline for 24/7/365 services and the commitment offered to each customer. Accessible at www.perfectron.com, PERFECTRON provides essential content such as up-to-date product information, downloadable drivers, utilities, BIOS, reference manuals and data sheets.

Quality Assurance

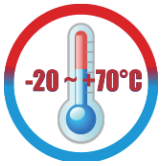
PERFECTRON pledges to deliver world-class products that come from investing large amounts of time towards the research, manufacturing, design and developing process to ensure that all products meet strict quality control and standards by implementing a rigid Quality Assurance System. PERFECTRON performs numerous industrial-standard tests in each stage of development before proceeding to the next stage. The final stages of tests are performed to ensure all board and system level products operate at satisfactory standards.

World-class Quality Guaranteed

Perfectron implements a rigorous Quality Assurance System that uses several tests to guarantee the products' ability to withstand extreme environment conditions, shock and vibration. We conduct industry standard tests at each stage of the development process before proceeding to the next stage. The Quality Engineering team verifies product quality through reliability tests to minimize the chances of out-of-box failures and guarantee top-rate performance.

On/Off Test

Engineers run an on/off test 10,000 times to check product hardware and software reliability. The repetitive test is important in verifying the quality of the embedded system. The test also guarantees that products operate smoothly even under rugged environments.



Extended Temperature Test

Engineers rate products for extended operation in temperatures that range from -40°C to +70°C. The test ensures that designs can survive inevitable temperature variations and extreme climate conditions.

24/7 None Stop Operation

Products need to pass cold start testing 5,000 times and withstanding over 72 hours of thermal cycles verification. Repeated rebooting tests guarantee the quality of PERFECTRON's computing systems. This assures customers that we consistently develop high performance products that pass our reliability tests.

Cold Start Test

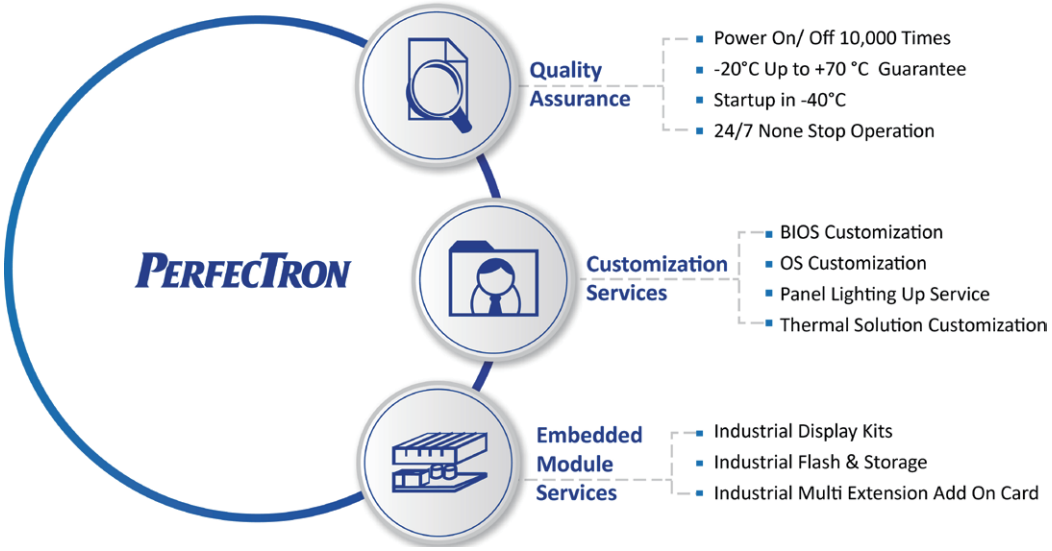
Uses high-grade components and high-density placements in developing embedded computer systems for 24/7 operations. Unlike typical commercial boards created for desktop and 9-to-5 environments, our products are designed to endure extreme environmental conditions and extended use.

Burn in Test

Each board undergoes a 100% factory burn-in or JTAG test with more than 48hours of 3-cycle non-stop chamber testing. The burn-in test is crucial in reducing RMA overhead. By thoroughly checking the boards prior to shipping, we lower the possibility of sending out defective products.

How PERFECTRON Serves You

Perfectron implements a rigorous Quality Assurance System that uses several tests to guarantee the products' ability to withstand extreme environment conditions, shock and vibration. We conduct industry standard tests at each stage of the development process before proceeding to the next stage. The Quality Engineering team verifies product quality through reliability tests to minimize the chances of out-of-box failures and guarantee top-rate performance.

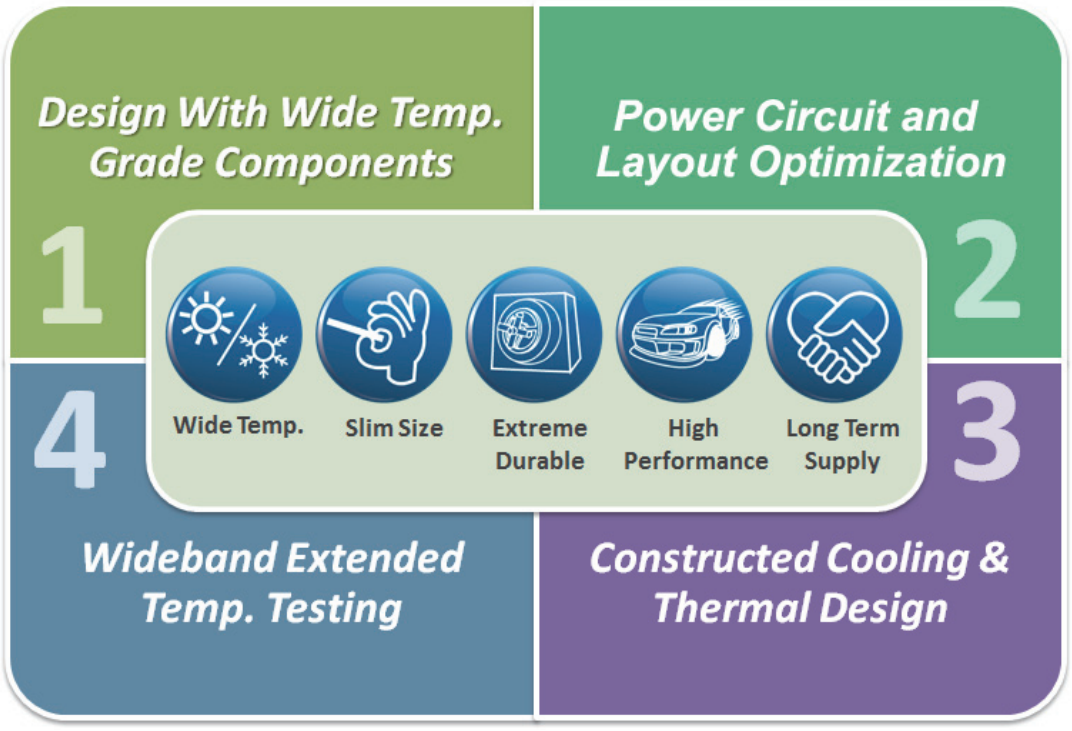


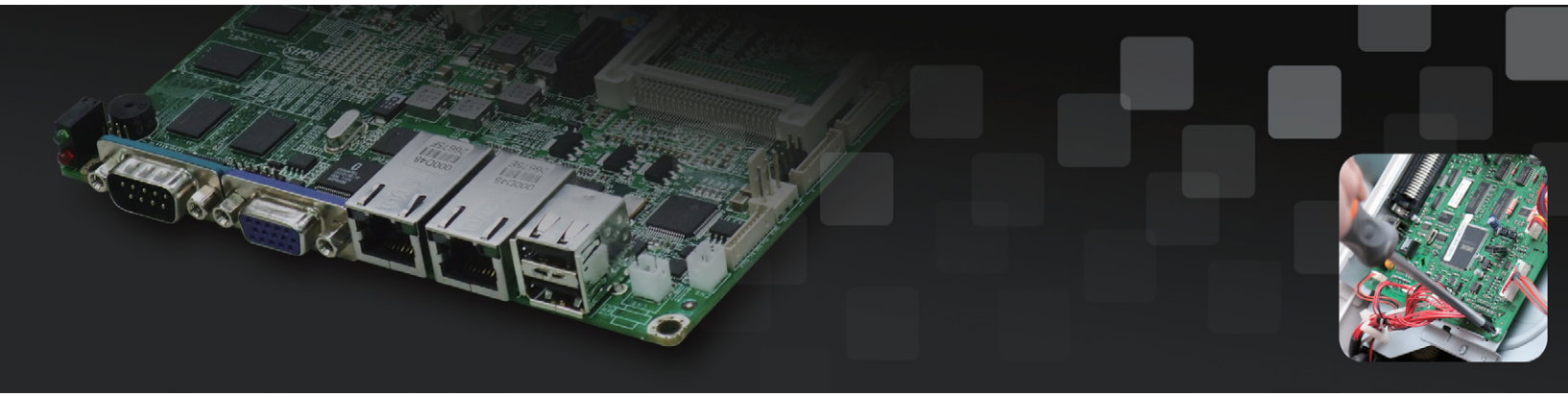
Optimizing Your Versatile Application Needs

Wide Temperature Design Principle

Commercial outdoor and vehicle industries employ a wide variety of industrial applications designed to operate in extreme conditions and temperatures, thermal shock, high humidity and electromagnetic disturbances and low temperature start-ups. Since the applications typically operate in difficult environments and under all weather conditions, reliable systems face severe technical challenges. Furthermore, system failures often result in higher cost considerations. Due to the extreme demand on these systems, reliability under every possible operating condition and at the highest level of failure tolerance is paramount.

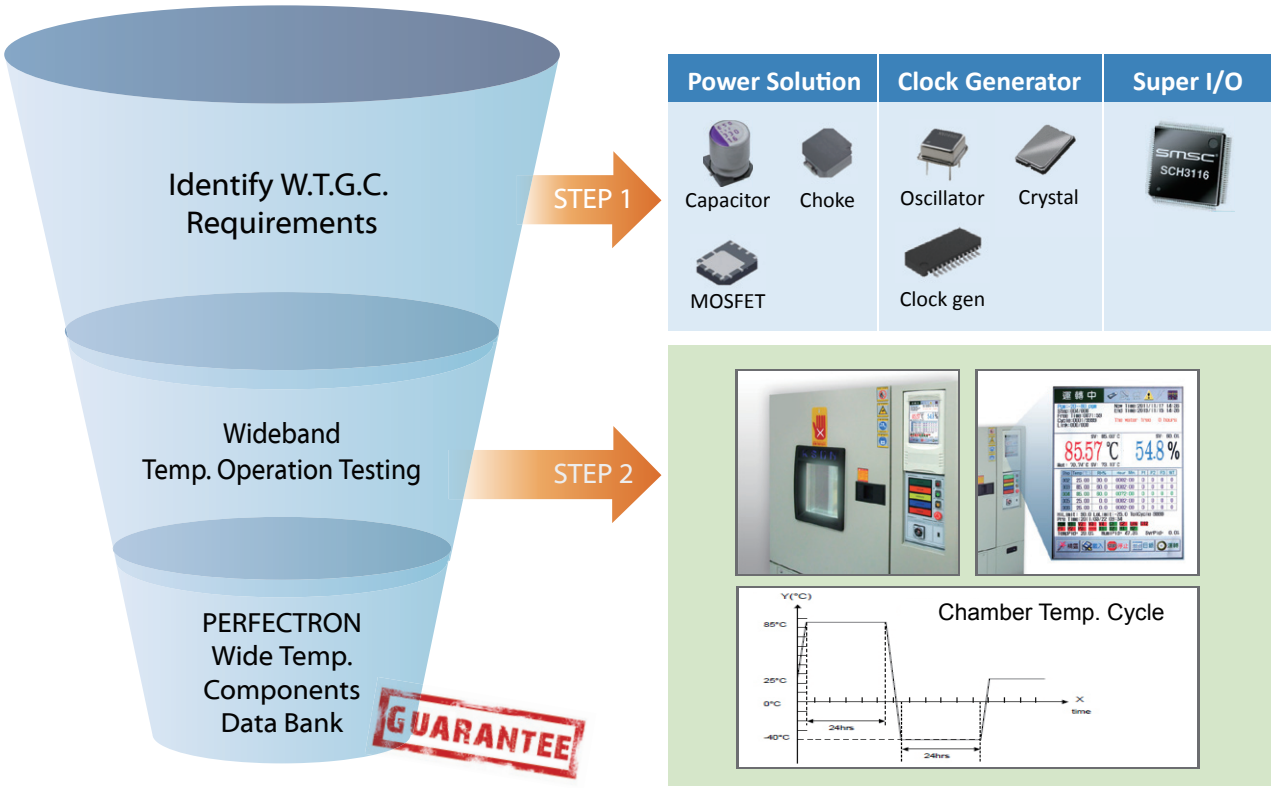
Apart from translating your concepts into highly marketable products, Perfectron delivers quality solutions that meet industry standards. We guarantee that our products are made in accordance with your requirements on wide temperature range, compact design, durability, high performance and extended lifecycle. To do this, we implement a design principle that uses wide temperature grade components, optimal power circuits, constructed cooling & thermal design, and wideband extended temperature testing.





(1) Design with Wide Temp Grade Components

Every component is crucial to the overall performance and reliability of a product over extended periods. To ensure customer satisfaction, Perfectron uses only industrial grade components that pass strict standards on vendor selection, extended temperature operation, ruggedness specification, reliability and durability. As part of our quality control measures, we maintain a database of wide temp grade components such as CPUs, chipsets, clock generators, super IO and power supplies.



(2) Power Circuit and Layout Optimization

Control of heat generation and heat flow are of primary importance in protecting the PCB and its components. To accomplish this goal, the PCB, heat spreader, and case are be viewed as a single thermal system. The PCB's metal layers are designed to conduct heat in a controlled manner from one part of the PCB to another. Using materials that have a high glass transition temperature (Tg) ensures the PCB and its components will not get damaged under high-heat conditions.

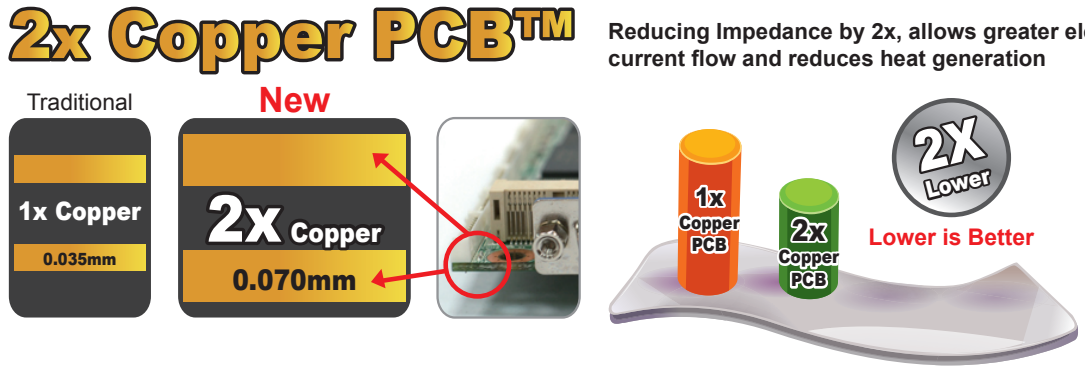
Component choice and placement

- Designing a wide-temperature embedded computer requires a full understanding of the product's thermal gradient in order to optimize the placement of components. The following factors need to be considered with regards to the thermal placement of components inside the computer.
- Identifying the main heat sources and hot spots so layout designers can determine the best component placement on the motherboard.
- Determining the amount of heat generated by the chassis type and the total system power consumption.
- Determining the primary direction of heat transmission in order to dispel the heat via a specific transfer route.
- Determine how the PCB design handles normal to heavy power loads.
- Determine how the PCB design provides better overclocking capability.

PERFECTRON

Perfectron 2X Copper PCB: The high-performance PCB

Perfectron 2X Copper PCB is a high-performance PCB that can handle normal to heavy power loads without overheating the critical CPU power delivery area. Our hardboard is made up of tightly packed layers, allowing a single board to power many components. The design of our PCB allows greater electrical current flow and prevents overheating.

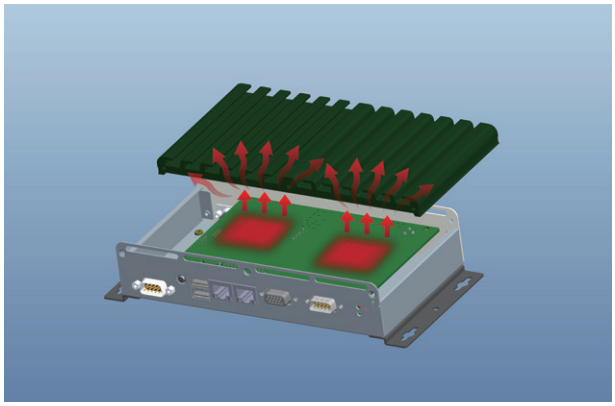


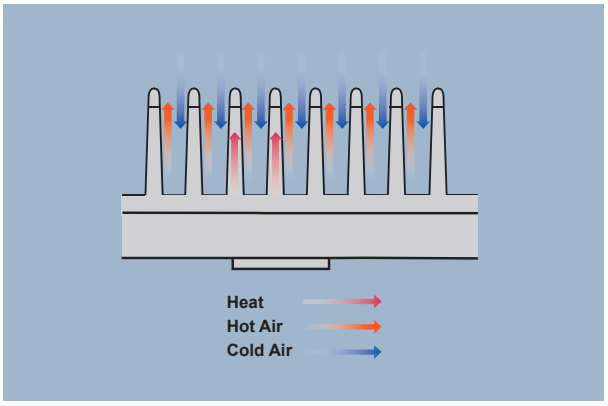
(3) Constructed Cooling & Thermal Design

Perfectron ensures that the computer systems we develop remain stable even in high temperature environments. Our experts create system designs that use efficient thermal solutions on both component and system levels. These designs typically feature larger heat sink surface areas to increase heat dissipation and reduce thermal resistance.

Goal for Thermal Solution

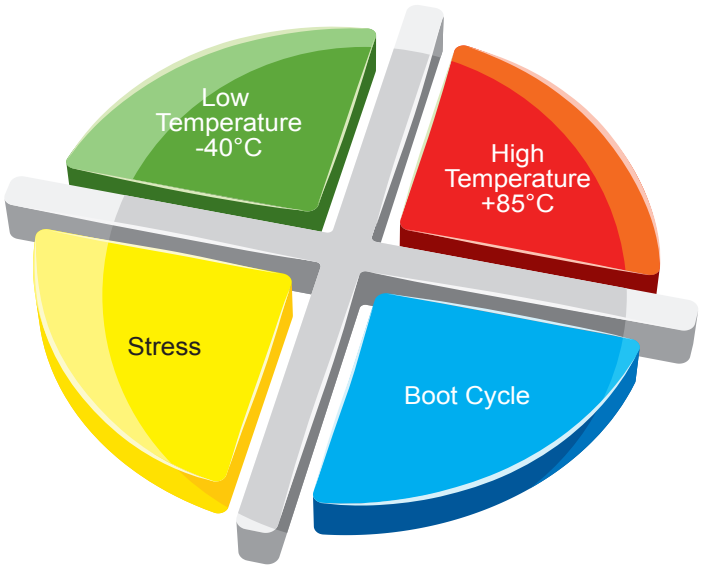
- Increase Heat Dissipation
- Lower Thermal Resistance





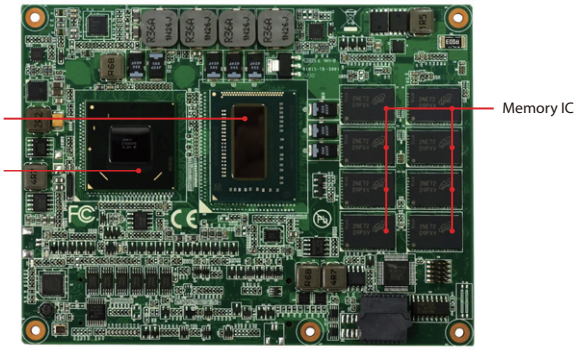
(4) Wideband Extended Temperature Testing

Perfectron complies with the IEC 60068 (Environmental Testing) standard, which ensures optimum product performance and reliability under the rigors of varying environmental conditions. This wideband extended temperature testing, from as low as -40°C to as high as +85°C, evaluates both component and system performance effectively, including dynamic temperature burn-in cycles and stress tests over extended periods of time. This high standard delivers reliability without degradation of performance or function loss. Mission-critical applications thus stay stable even under harsh environments through Perfectron efficient thermal solutions.



OXY5135B

Intel® Ivy Bridge Core™ i7 COM Express Type 6 Module with QM77 Chipset, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Ivy Bridge CPU onboard
- Supports Intel® QM77 chipset
- 4 GB DDR3 Memory IC onboard
- Three Digital Display Interfaces (DDI)
- 1 x PCIe x16, 7 x PCIe x1
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	3rd Generation Intel® Core™ i7/i5/i3 processor, BGA type Core™ i7-3517UE (2C x 1.7 GHz), 4M L2 cache (17W) Core™ i5-3610ME (2C x 2.7 GHz), 3M L2 cache (35W) Core™ i3-3217UE (2C x 1.66 GHz), 3M L2 cache (17W)
Chipset	Intel® QM77
Memory Type	Dual channel 4 GB DDR3 1600 MHz memory IC onboard
BIOS	AMI® UEFI BIOS
Super I/O	Fintek F81801-I
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Busses	1 x PCIe x16 (2 x PCIe x8 or 1 x PCIe x8 + 2 x PCIe x4) 7 x PCIe x1

Display

Chipset	Integrated GFX in Ivy Bridge processor
VGA	Yes (Max. resolution 2048 x1536 @ 60 Hz)
LVDS	Dual channel 24-bit LVDS
DDI	Three DDI ports support HDMI/DP/SDVO/DVI

Audio

Codec	Integrated Intel® High Definition Audio

Ethernet

Chipset	1 x Intel® 82579LM GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

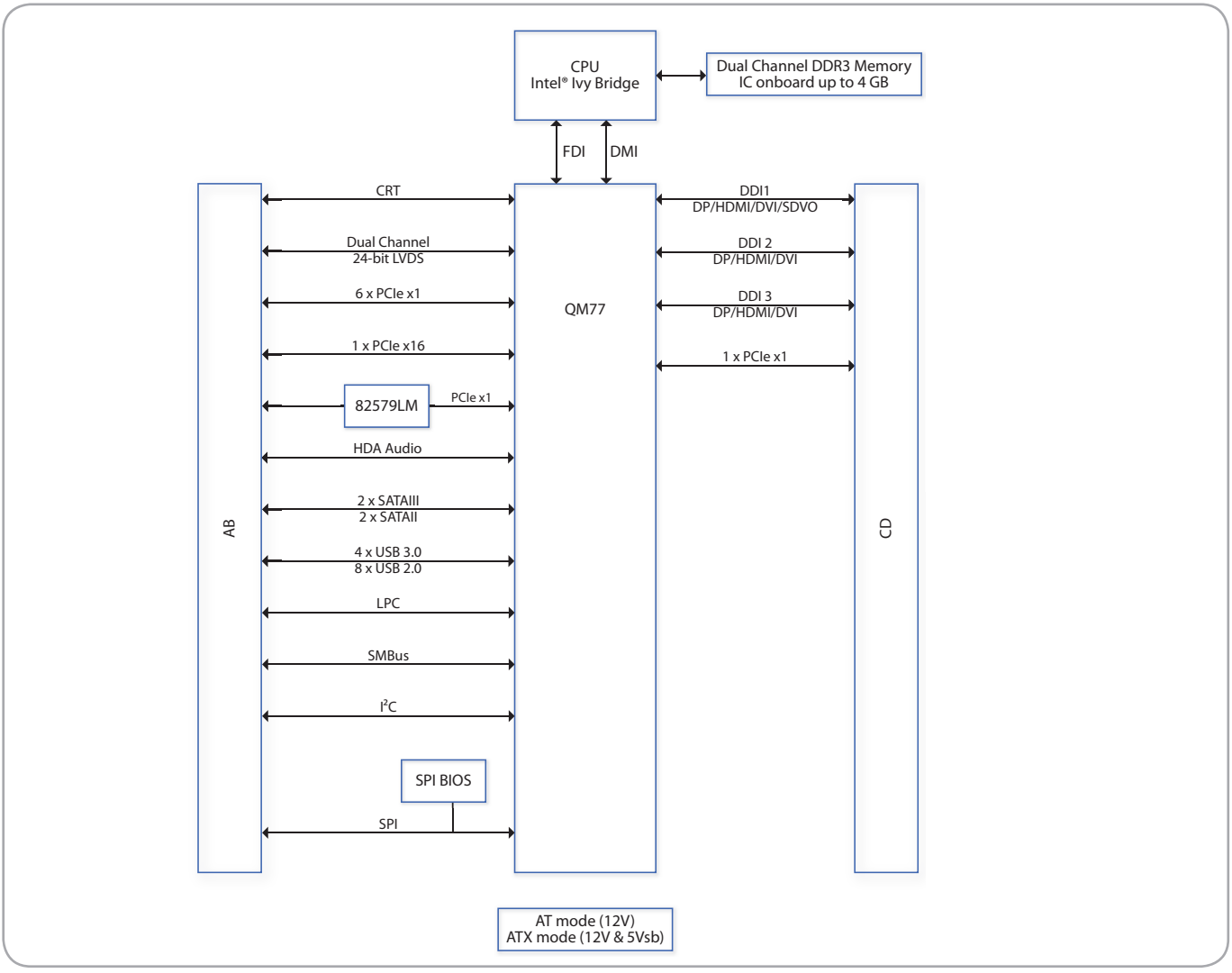
I/O Interface

SATA	2 x SATAIII (6 Gb/s) 2 x SATAII (3 Gb/s)
USB	4 x USB 3.0 8 x USB 2.0
LPC bus	1
SMBus	1
I^2C	1

Mechanical and Environment

Form Factor	COM Express Type 6
Power Type	AT mode (12V) ATX mode (12V & 5Vsb)
Dimension	125 x 95 mm (4.9" x 3.7")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5135B COM Express Type 6 Module
- CD (Driver + user's manual)

Optional Accessories

Thermal Kit

Heatspreader

Active heatsink

Evaluation Carrier Board

SK505 COM Express Type 6 carrier board

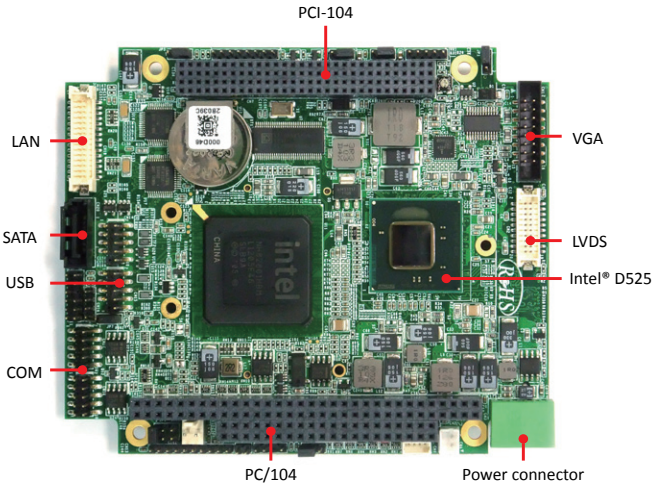
Ordering Information

Modules

Model Number	Description
OXY5135B-ET-3517UE	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i7-3517UE) (-20 to 70°C)
OXY5135B-ET-3610ME	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i5-3610ME) (-20 to 70°C)
OXY5135B-ET-3217UE	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i3-3217UE) (-20 to 70°C)
OXY5135B-UT-3517UE	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i7-3517UE) (-40 to 85°C)
OXY5135B-UT-3610ME	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i5-3610ME) (-40 to 85°C)
OXY5135B-UT-3217UE	COM Express Type 6 Intel® Ivy Bridge Processor (Mobile) BGA CPU (Core™ i3-3217UE) (-40 to 85°C)

OXY5413A

Intel® Pineview D525 PC/104+ Module, Wide Temp. -20 to 70°C



Main Features

- Supports Intel® Atom™ D525 CPU onboard
- VGA/LVDS dual display
- SATA and CFast socket
- Dual GbE LAN
- PCI-104 and PC/104
- Wide operating temp. -20 to 70°C

Specifications

System

CPU Type	Intel® Atom™ D525 1.80 GHz
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800 MHz up to 4 GB
BIOS	AMI® BIOS
Super I/O	SMSC SCH3112
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	PC/104, PCI-104

Display

Chipset	Integrated Intel® GMA3150 GFX Render core
VGA	Yes (Max. resolution 2048 x 1536)
LVDS	Supports single channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Independent Displays Capability	VGA + LVDS

Audio

Codec	Realtek ALC269 High Definition Audio Codec

Ethernet

Chipset	2 x RTL8111DL GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

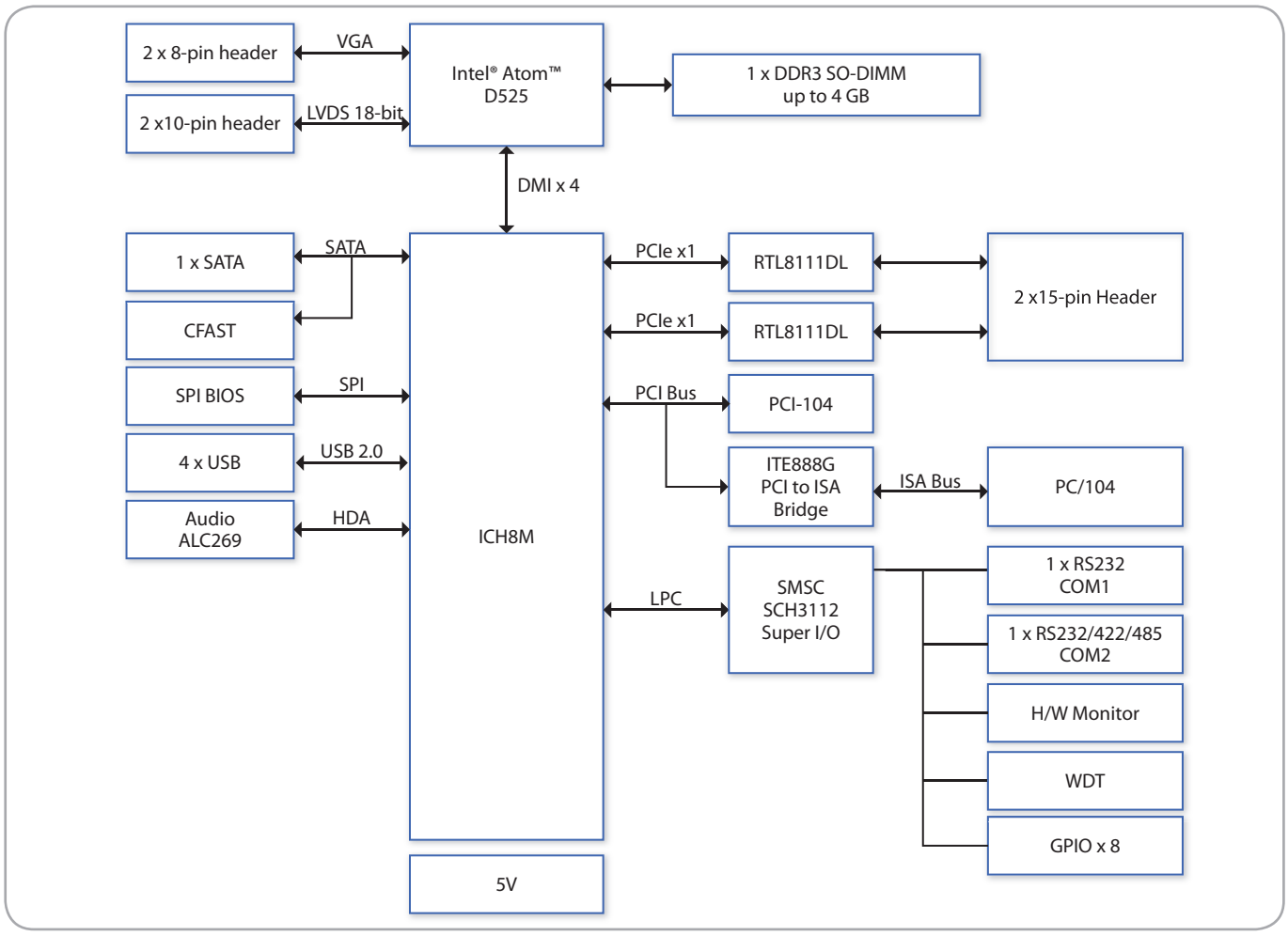
Internal I/O

SATA	1 x SATAII (3 Gb/s)
SSD	1 x CFast socket
USB	4 ports by 2 x 5-pin header
COM	2 ports by 2 x 5-pin header COM2 supports RS232/422/485
VGA	2 x 8-pin header
LAN	2 x 15-pin header
LVDS	20-pin connector

Mechanical and Environment

Form Factor	PC/104+
Power type	5V DC-in
Dimension	96 x 115 mm (3.8" x 4.5")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5413A PC/104+ Module
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5413A

Thermal Kit

Active heatsink

LAN Kit

LAN card & cable

Stacker Kit

PC/104 stacker (64-pin + 40-pin)

PCI-104 stacker

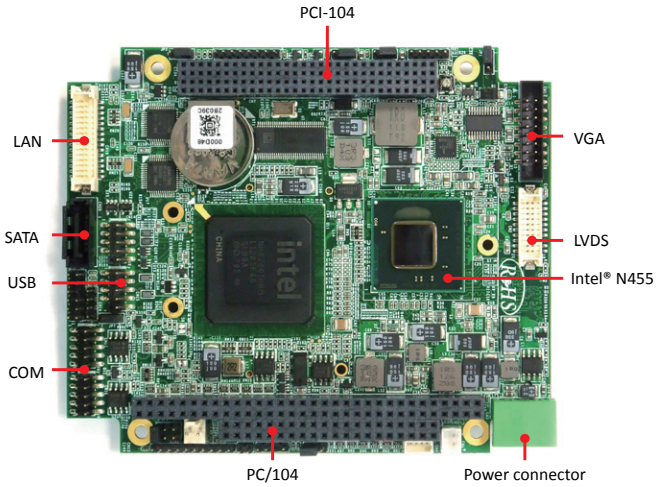
Ordering Information

Modules

Model Number	Description
OXY5413A-ET	PC/104+ Module, Intel® Pineview D525 with DDR3 SO-DIMM, Dual Display by VGA/LVDS PC/104, PCI-104, Dual GbE LAN, and 5V DC-in (-20 to 70°C)

OXY5415A

Intel® Pineview N455 PC/104+ Module, Wide Temp. -20 to 70°C



Main Features

- Supports Intel® Atom™ N455 CPU onboard
- VGA/LVDS dual display
- SATA and CFast socket
- Dual GbE LAN
- PCI-104 and PC/104
- Wide operating temp. -20 to 70°C

Specifications

System

CPU Type	Intel® Atom™ N455 1.66 GHz
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800 MHz up to 2 GB
BIOS	AMI® BIOS
Super I/O	SMSC SCH3112
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	PC/104, PCI-104

Display

Chipset	Integrated Intel® GMA3150 GFX Render core
VGA	Yes (Max. resolution 2048 x 1536)
LVDS	Supports single channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Independent Displays Capability	VGA+LVDS

Audio

Codec	Realtek ALC269 High Definition Audio Codec

Ethernet

Chipset	2 x RTL8111DL GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

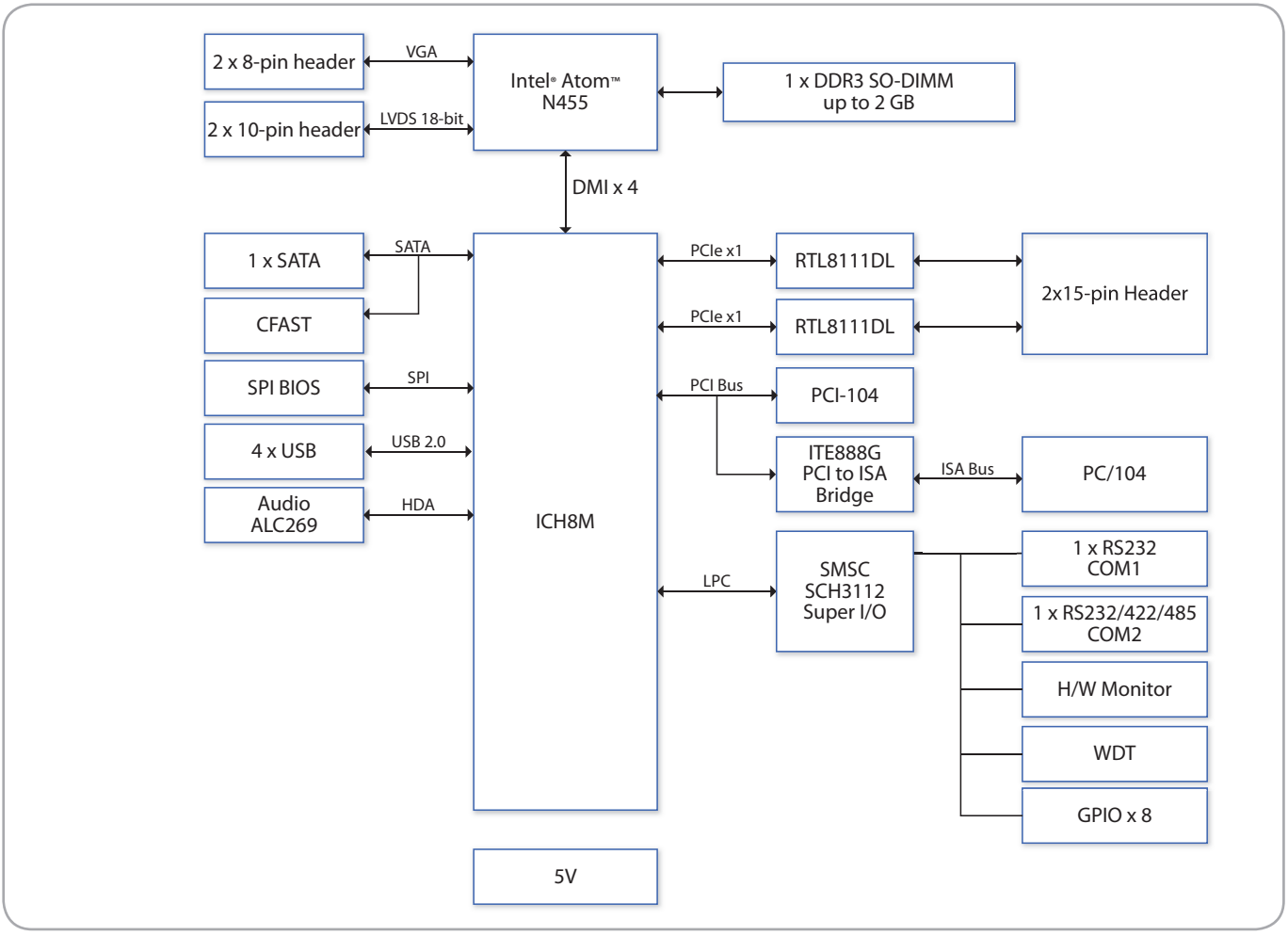
Internal I/O

SATA	1 x SATAII (3 Gb/s)
SSD	1 x CFast socket
USB	4 ports by 2 x 5-pin header
COM	2 ports by 2 x 5-pin header COM2 supports RS232/422/485
VGA	2 x 8-pin header
LAN	2 x 15-pin header
LVDS	20-pin connector

Mechanical and Environment

Form Factor	PC/104+
Power type	5V DC-in
Dimension	96 x 115 mm (3.8" x 4.5")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5415A PC/104+ Module
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5415A

Thermal Kit

Active heatsink

LAN Kit

LAN card & cable

Stacker Kit

PC/104 stacker (64-pin + 40-pin)

PCI-104 stacker

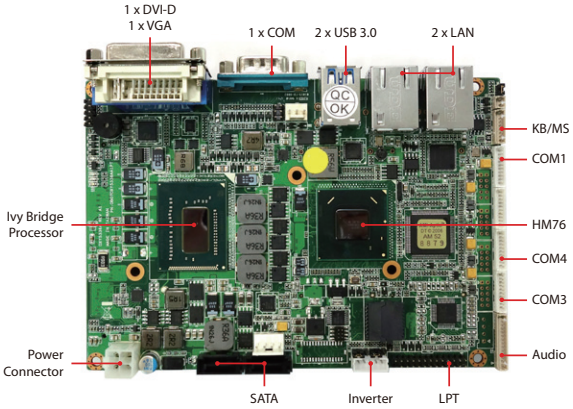
Ordering Information

Modules

Model Number	Description
OXY5415A-ET	PC/104+ Module, Intel® Pineview N455 with DDR3 SO-DIMM, Dual Display by VGA/LVDS PC/104, PCI-104, Dual GbE LAN, and 5V DC-in (-20 to 70°C)

OXY5336A

Intel® Ivy Bridge HM76 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Ivy Bridge BGA CPU
- Multi display: VGA, DVI-D, LVDS
- Supports dual channel 24-bit LVDS
- 1 x Mini PCIe
- 1 x mSATA
- 4 x COM ports
- 10 x USB ports
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Ivy Bridge 22nm Core™ i7/i5/i3, BGA type Core™ i7-3517UE (2C x 1.7 GHz), 4M L2 cache (17W) Core™ i5-3610ME (2C x 2.7 GHz), 3M L2 cache (35W) Core™ i3-3217UE (2C x 1.66 GHz), 3M L2 cache (17W)
Chipset	Intel® HM76
Memory Type	1 x 204-pin SO-DIMM DDR3 1333/1600 MHz up to 8 GB
BIOS	AMI® UEFI BIOS
Super I/O	Fintek F81866AD-I
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x mPCIe 1 x mSATA

Display

Chipset	Intel® HD Grapics 4000 Integrated Graphics Engine
VGA	Yes (Max. resolution 2048 x 1536)
LVDS	Dual channel 24-bit LVDS
Display Type	VGA, LVDS, DVI-D

Audio

Codec	Realtek ALC887 High Definition Audio Codec

Ethernet

Chipset	Intel® 82579LM & 82574L GbE
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
DVI-D	1
Ethernet	2 x RJ45
COM	1 x RS232/422/485
USB	2 x USB 3.0

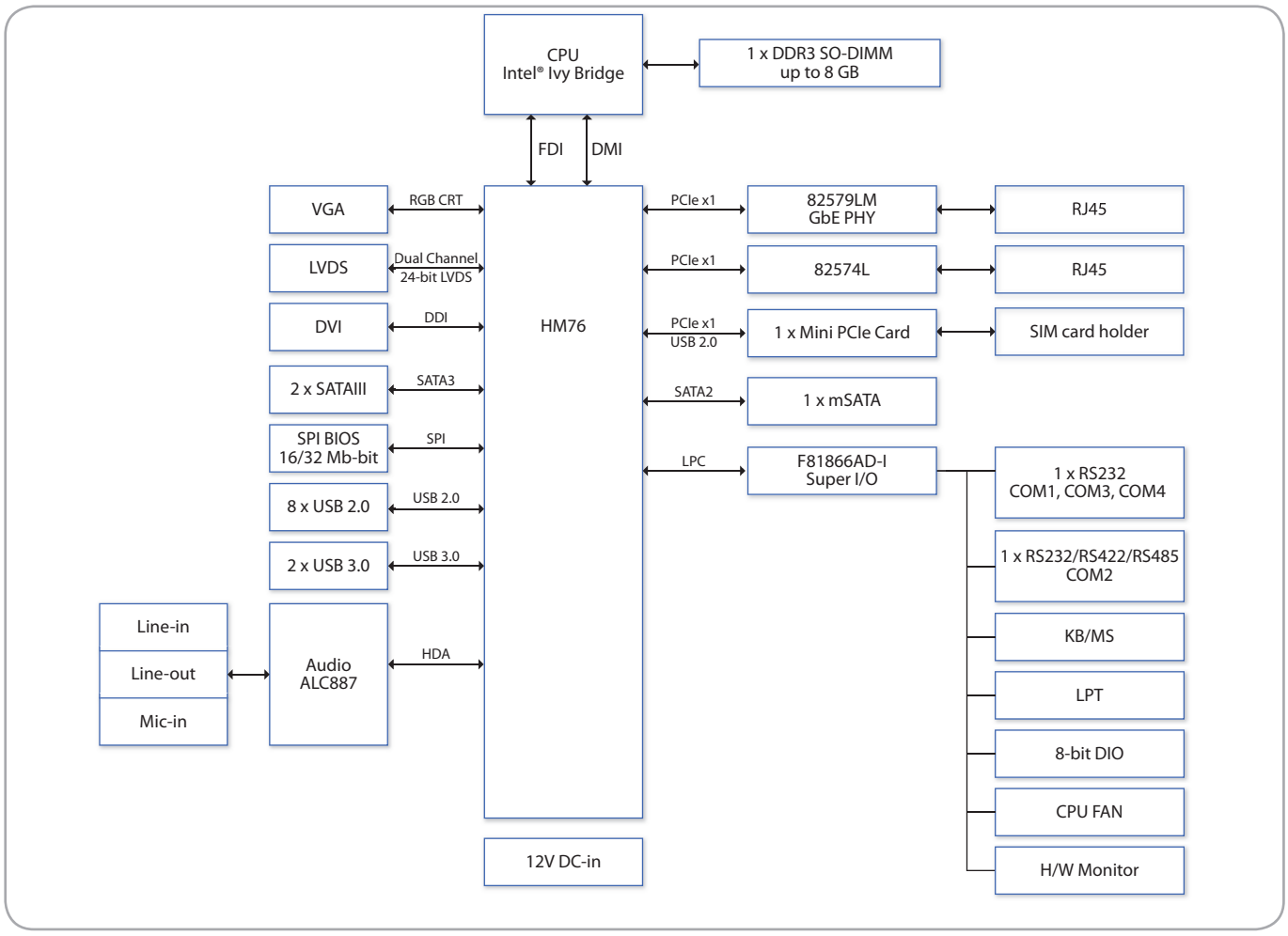
Internal I/O

SATA	2 x SATAIII (6 Gb/s)
USB	10 x USB
	2 x USB 3.0 ports on rear I/O 8 x USB 2.0 ports by pin header
COM	4 x COM ports
	COM 1, 3, 4 ports support RS232 by pin header COM 2 port supports RS232/422/485 on rear I/O
Audio	Mic-in, Line-in, Line-out
FAN	1 x CPU fan
DIO	8-bit (4 in/4 out)
LVDS	30-pin connector
PS/2	1 x 8-pin header
Parellel Port	2 x 13-pin header
SIM card holder	1

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5336A 3.5" SBC
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5336A

Thermal Kit

Active heatsink

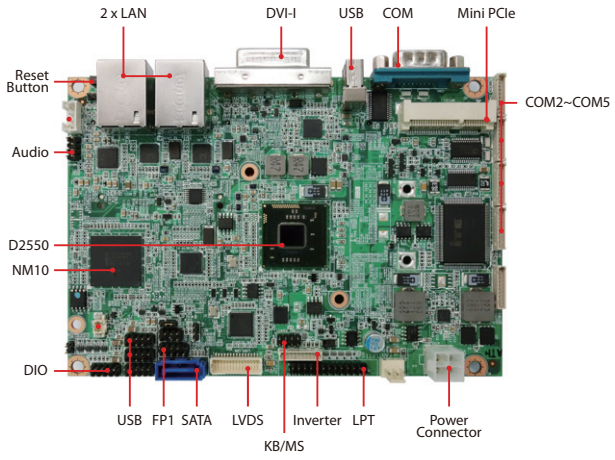
Ordering Information

Modules

Model Number	Description
OXY5336A-ET-3517UE	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in (Core™ i7-3517UE) (-20 to 70°C)
OXY5336A-ET-3610ME	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in (Core™ i5-3610ME) (-20 to 70°C)
OXY5336A-ET-3217UE	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in(Core™ i3-3217UE) (-20 to 70°C)
OXY5336A-UT-3517UE	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in (Core™ i7-3517UE) (-40 to 85°C optional)
OXY5336A-UT-3610ME	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in (Core™ i5-3610ME) (-40 to 85°C optional)
OXY5336A-UT-3217UE	3.5" SBC Intel® Ivy Bridge Processor (Mobile) BGA CPU, Multi-Display by DVI-D, VGA, LVDS, Dual Intel® GbE LAN, +12V DC-in (Core™ i3-3217UE) (-40 to 85°C optional)

OXY5321A

Intel® Cedarview D2550 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Atom™ D2550 CPU onboard
- Single/dual channel 18/24-bit LVDS
- 1 x Mini PCIe slot
- 5 x COM ports
- 7 x USB ports
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ D2550 1.86 GHz
Chipset	Intel® NM10
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 MHz up to 4 GB
BIOS	AMI® BIOS
Super I/O	ITE IT8783F
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3650 VR Graphic core SGX545
DVI-I	Yes (Max. resolution 1920 x 1200 @ 60 Hz)
LVDS	Supports 18/24-bit single/dual channel LVDS (Max. resolution 2560 x 1600 @ 60 Hz)
Dual Independent Displays Capability	LVDS + DVI-I

Audio

Codec	Realtek ALC269 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x RTL8111E GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

DVI-I	1
Ethernet	2 x RJ45
USB	1
COM	1 x RS-232/422/485 with 5V/12V selectable
Reset Button	1

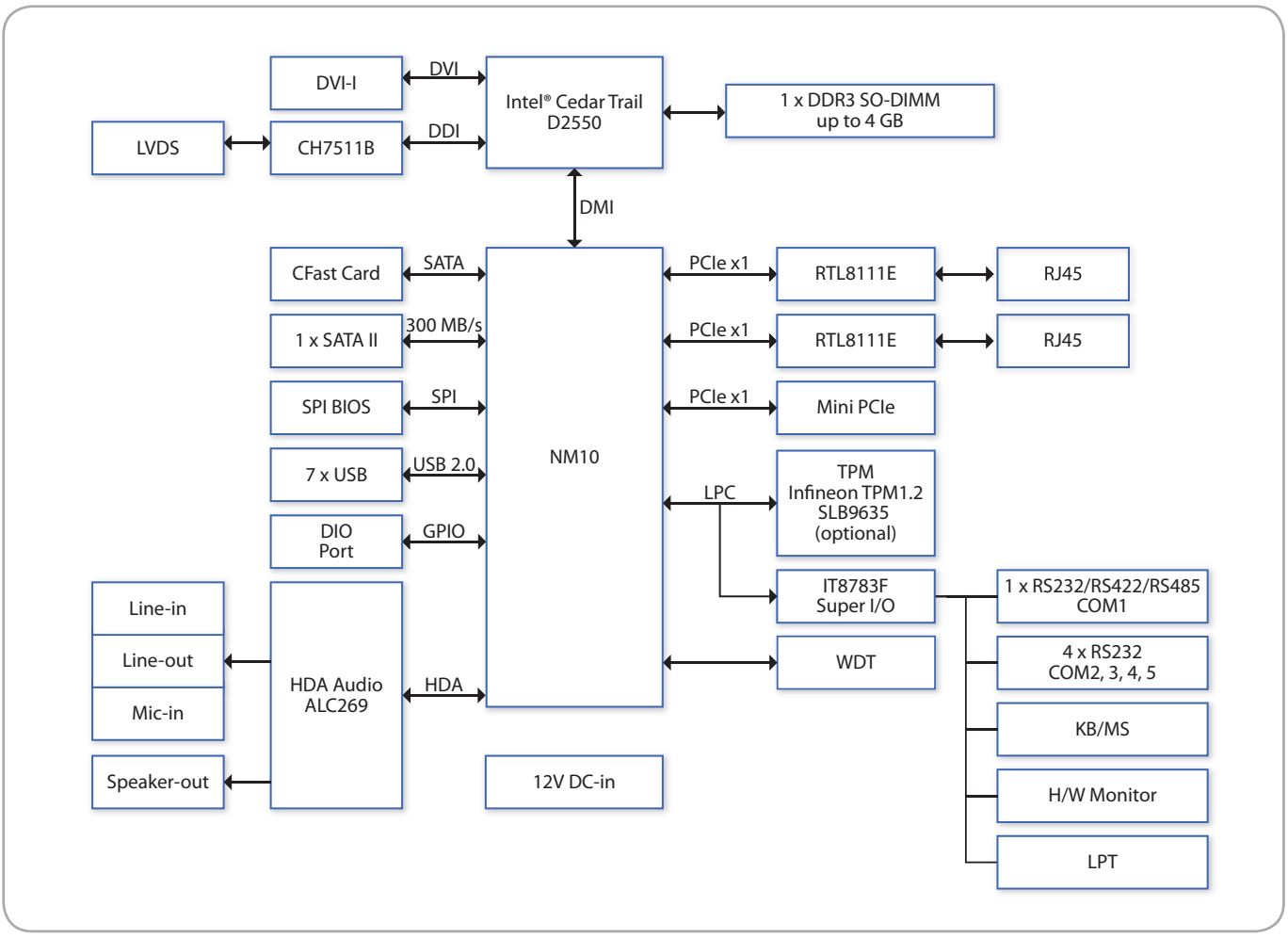
I/O Interface

SATA	1 x SATAII (3 Gb/s)
SSD	1 x CFast socket
USB	7 x USB
	1 port on rear I/O 6 ports by 2 x 5-pin header
COM	5 x COM ports
	• COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~COM5 ports support RS232 only with 5V/12V selectable by 1x10-pin header
Audio	1 x 4-pin header for Speak-out
LVDS	30-pin connector
PS/2	2 x 4-pin header
LPT	2 x 13-pin header
DIO	8-bit (4 in/4 out)

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5321A 3.5" SBC
- CD (Driver + user's manual)
- CPU cooler

Optional Accessories

Cable Kit

Cable kit for OXY5321A

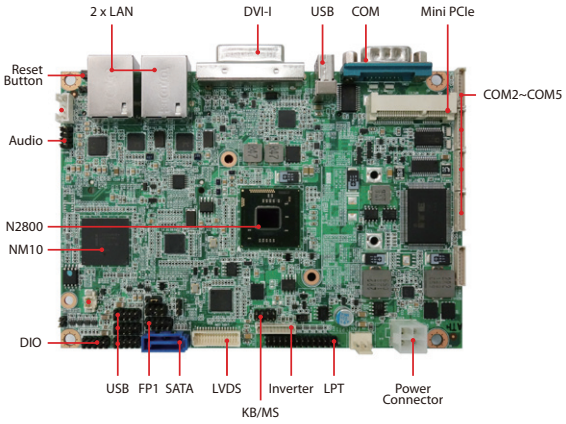
Ordering Information

Modules

Model Number	Description
OXY5321A-ET	3.5" SBC Intel® Cedarview D2550 with DDR3 SO-DIMM, Dual Display by LVDS/DVI-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-20 to 70°C)
OXY5321A-UT	3.5" SBC Intel® Cedarview D2550 with DDR3 SO-DIMM, Dual Display by LVDS/DVI-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-40 to 85°C optional)

OXY5316A

Intel® Cedarview N2800 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Atom™ N2800 CPU onboard
- Supports single/dual channel 18/24-bit LVDS
- 1 x Mini PCIe slot
- 5 x COM ports
- 7 x USB ports
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ N2800 1.86 GHz
Chipset	Intel® NM10
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 MHz up to 4 GB
BIOS	AMI® BIOS
Super I/O	ITE IT8783F
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3650 VR Graphic core SGX545
DVI-I	Yes (Max. resolution 1920 x 1200 @ 60 Hz)
LVDS	Supports 18/24-bit single/dual channel LVDS (Max. resolution 1600 x 1200 @ 60 Hz)
Dual Independent Displays Capability	LVDS + DVI-I

Audio

Codec	Realtek ALC269 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x RTL8111E GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

DVI-I	1
Ethernet	2 x RJ45
USB	1
COM	1 x RS-232/422/485 with 5V/12V selectable
Reset Button	1

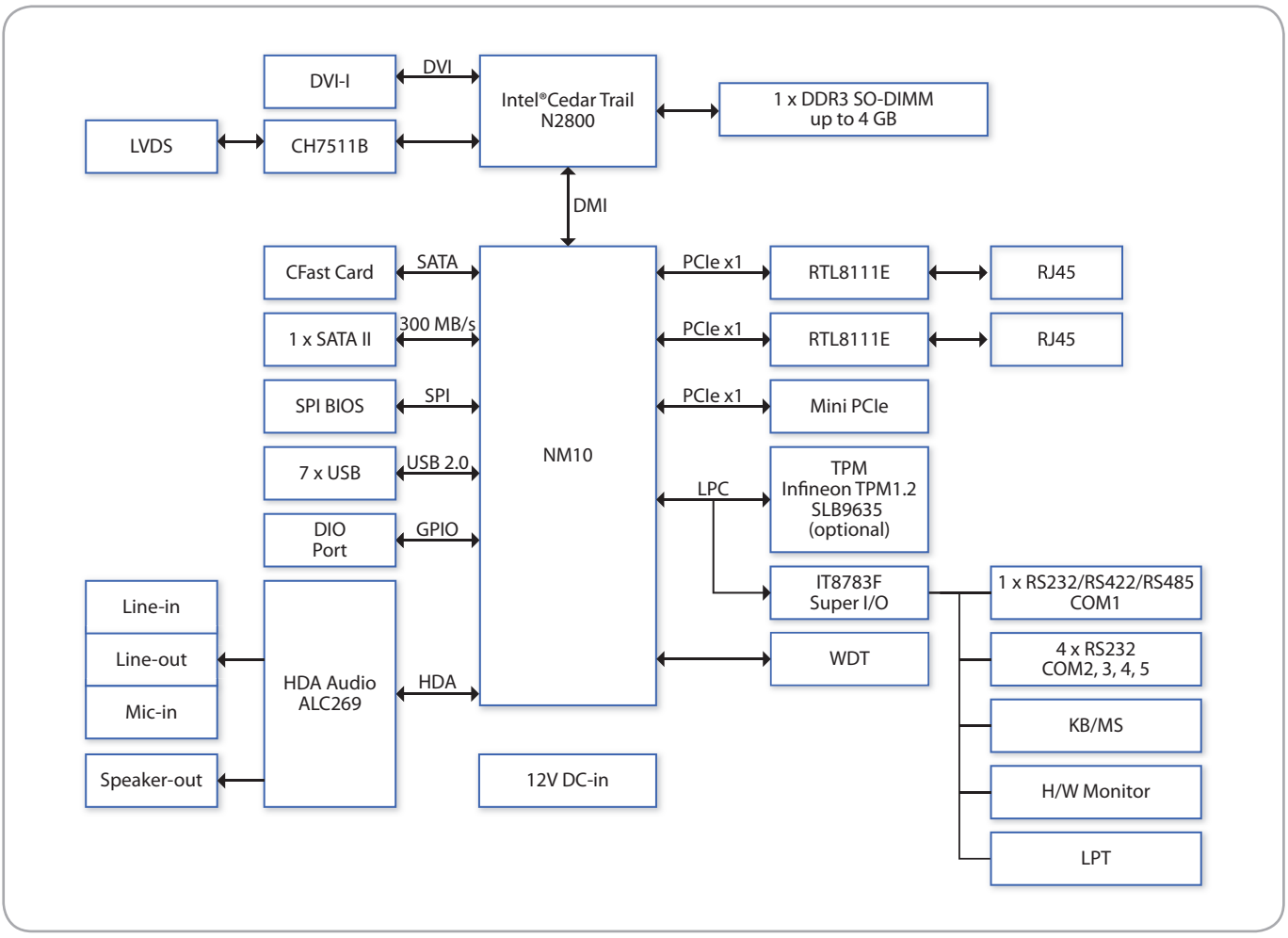
I/O Interface

SATA	1 x SATAII (3 Gb/s)
SSD	1 x CFast socket
USB	7 x USB
	1 port on rear I/O 6 ports by 2 x 5-pin header
COM	5 x COM ports
	• COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~COM5 ports support RS232 with 5V/12V selectable by 1 x10 box header
Audio	1 x 4-pin header for Speak-out
LVDS	30-pin connector
PS/2	2 x 4-pin header
LPT	2 x 13-pin header
DIO	8-bit (4 in/4 out)

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5316A 3.5" SBC
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5316A

Thermal Kit

Passive heatsink

CPU cooler

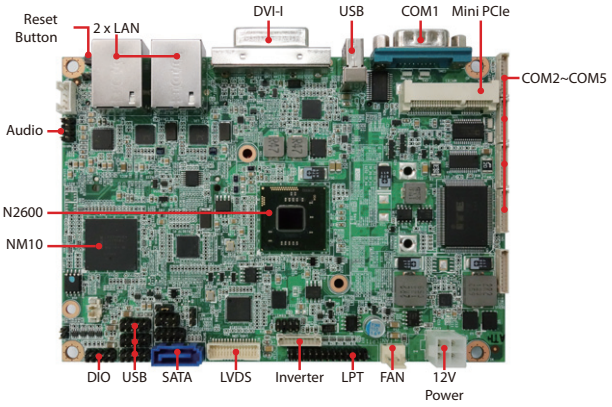
Ordering Information

Modules

Model Number	Description
OXY5316A-ET	3.5" SBC Intel® Cedarview N2800 with DDR3 SO-DIMM, Dual Display by LVDS/DV-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-20 to 70°C)
OXY5316A-UT	3.5" SBC Intel® Cedarview N2800 with DDR3 SO-DIMM, Dual Display by LVDS/DV-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-40 to 85°C optional)

OXY5320A

Intel® Cedarview N2600 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Atom™ N2600 CPU onboard
- Supports single/dual channel 18/24-bit LVDS
- 1 x Mini PCIe slot
- 5 x COM ports
- 7 x USB ports
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ N2600 1.60 GHz
Chipset	Intel® NM10
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 MHz up to 2 GB
BIOS	AMI® BIOS
Super I/O	ITE IT8783F
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3600 VR Graphic core SGX545
DVI-I	Yes (Max. resolution 1920 x 1200 @ 60 Hz)
LVDS	Supports 18/24-bit single/dual channel LVDS (Max. resolution 1600 x 1200 @ 60 Hz)
Dual Independent Displays Capability	LVDS + DVI-I

Audio

Codec	Realtek ALC269 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x RTL8111E GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

DVI-I	1
Ethernet	2 x RJ45
USB	1
COM	1 x RS-232/422/485 with 5V/12V selectable
Reset Button	1

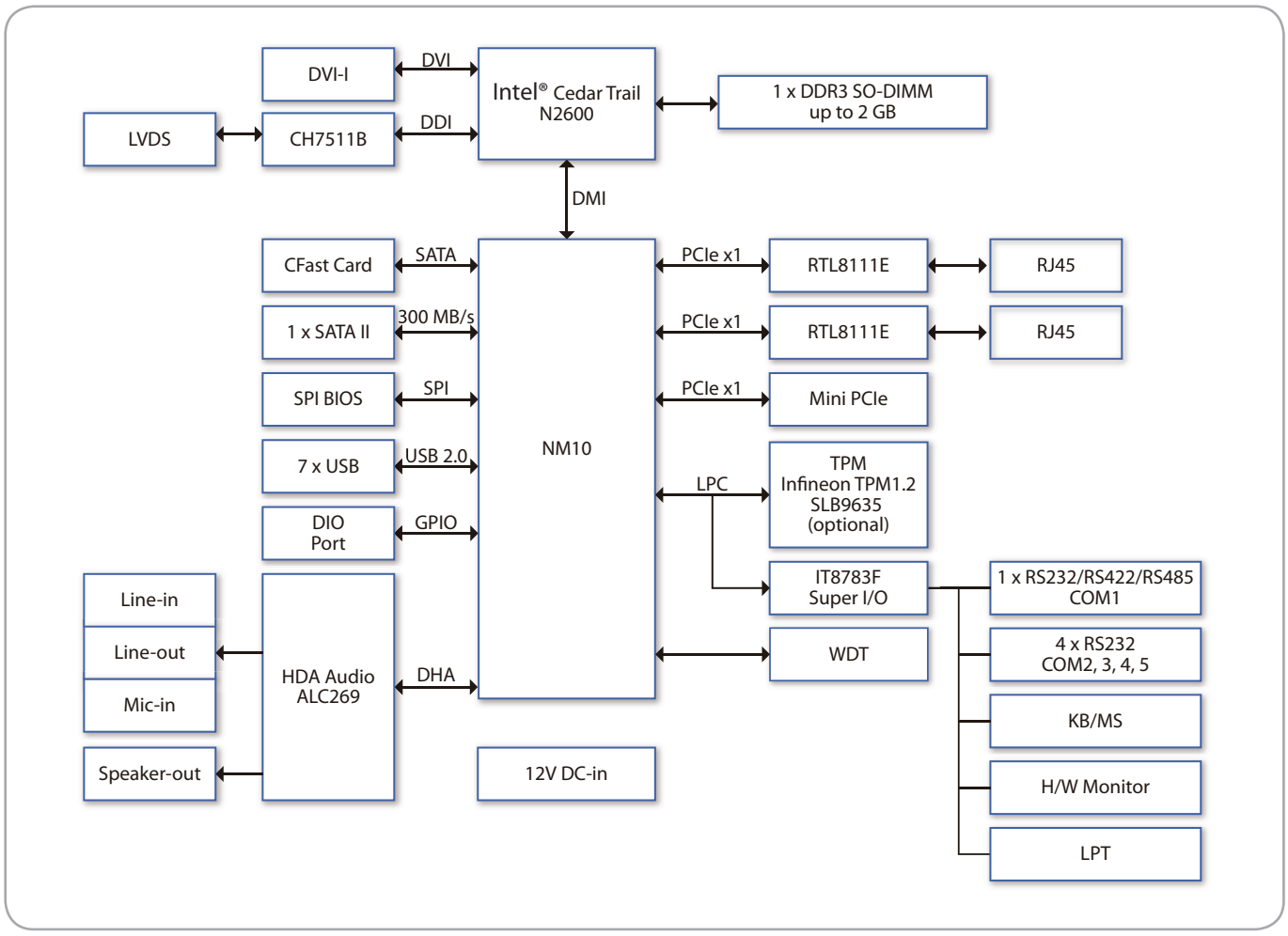
I/O Interface

SATA	1 x SATAII (3 Gb/s)
SSD	1 x CFast socket
USB	7 x USB 1 port on rear I/O 6 ports by 2 x 5-pin header
COM	5 x COM ports • COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~COM5 ports support RS232 only with 5V/12V selectable by 1 x 10-pin header
Audio	1 x 4-pin header for Speak-out
LVDS	30-pin connector
PS/2	2 x 4-pin header
LPT	2 x 13-pin header
DIO	8-bit (4 in/4 out)

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5320A 3.5" SBC
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5320A

Thermal Kit

Passive heatsink

CPU cooler

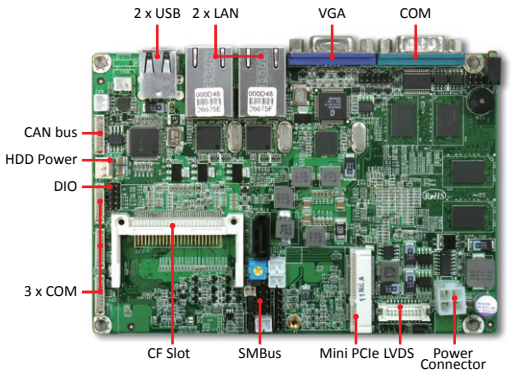
Ordering Information

Modules

Model Number	Description
OXY5320A-ET	3.5" SBC Intel® Cedarview N2600 with DDR3 SO-DIMM, Dual Display by LVDS/DVI-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-20 to 70°C)
OXY5320A-UT	3.5" SBC Intel® Cedarview N2600 with DDR3 SO-DIMM, Dual Display by LVDS/DVI-I, Dual GbE LAN, Audio, 5 x COM, 7 x USB, and 12V DC-in (-40 to 85°C)

OXY5314A

Intel® Tunnel Creek E660T 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Tunnel Creek E660T CPU onboard
- 1 GB DDR2 memory onboard
- 4 x COM ports
- 2 x USB ports
- CAN Bus, SMBus
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ E660T 1.3 GHz
Chipset	Intel® Topcliff EG20T
Memory Type	1 GB DDR2 667/800 MHz memory IC onboard
BIOS	AMI™ BIOS
Super I/O	SMSC SCH3114
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe (half-size)

Display

Chipset	Chrontel 7317B SDVO to VGA transmitter
VGA	Yes (Max. resoultion 1280 x 1024 @ 70 Hz)
LVDS	Supports signle channel 18/24-bit LVDS
Dual Independent Displays Capability	LVDS + VGA

Audio

Codec	Realtek ALC886 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x Intel® 82574IT GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
Ethernet	2 x RJ45
USB	2
COM	1 x RS232/422/485 with 5V/12V selectable

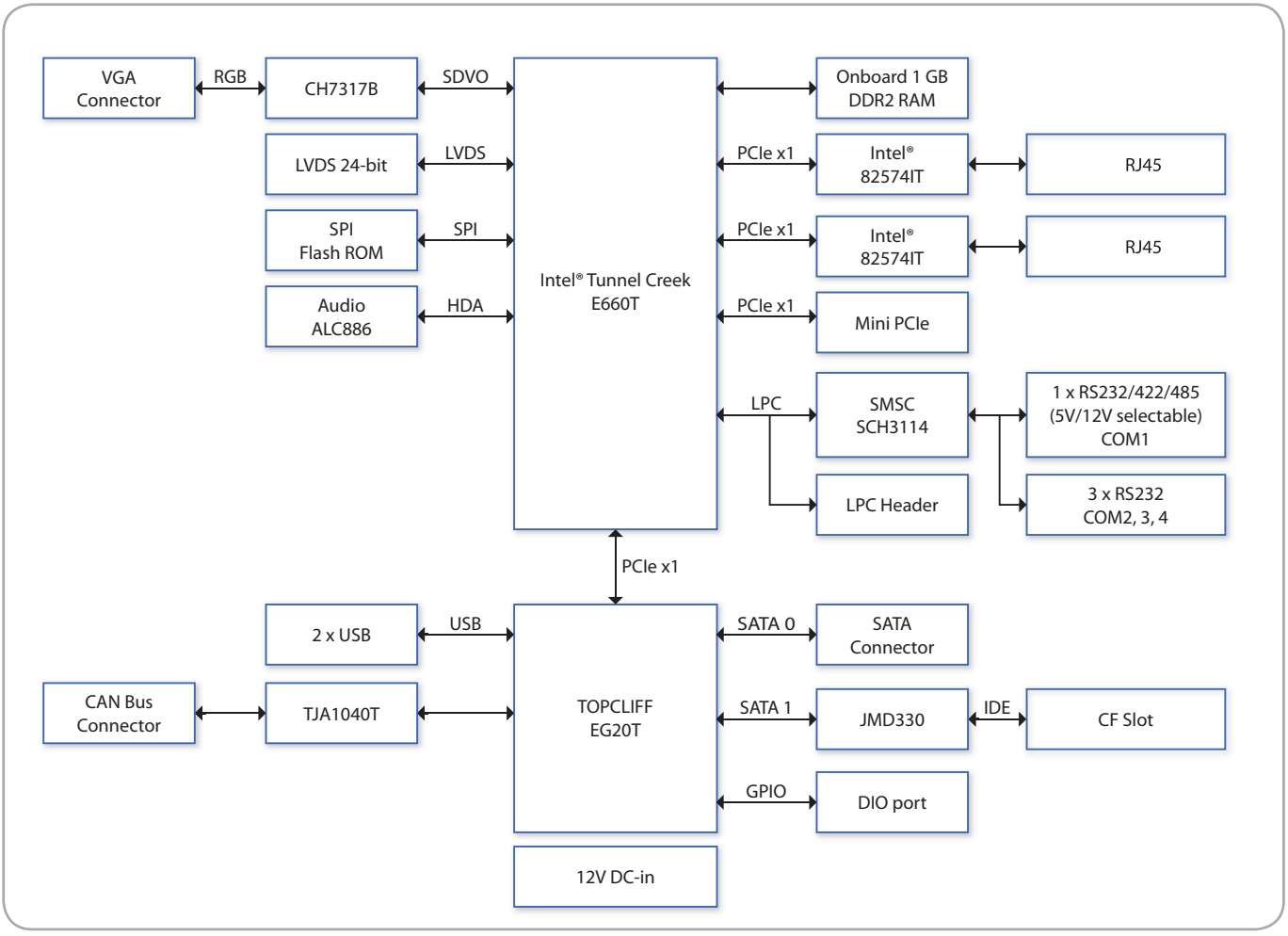
Internal I/O

SATA	1 x SATAII (3 Gb/s) 1 x 3-pin power connector
SSD	1 x Compact Flash TypeII socket
USB	2 ports on rear I/O
COM	4 x COM ports • COM1 port supports RS232/422/485 with 5V/12V selection on rear I/O • COM2~4 ports support RS232 by 1 x 10-pin header
LVDS Connector	20-pin connector
CAN Bus	1 x 10-pin header
SMBus	1 x 2-pin header
DIO	8-bit (4 in/4 out)
Audio	1 x 6-pin header for Mic-in/Line-in/Line-out

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70℃
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5314A 3.5" SBC
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5314A

CF Card

Innodisk iCF4000 series

Apacer Industrial CF series

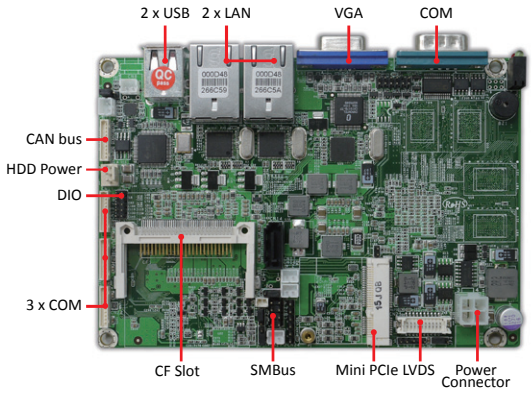
Ordering Information

Modules

Model Number	Description
OXY5314-ET	3.5" SBC Intel® Tunnel Creek E660T + Topcliff EG20T with DDR2 onbord Memory Dual Display by VGA/ LVDS, Dual GbE LAN, 4 x COM, 2 x USB, CAN Bus, and 12V DC-in (-20 to 70°C)
OXY5314-UT	3.5" SBC Intel® Tunnel Creek E660T + Topcliff EG20T with DDR2 onbord Memory Dual Display by VGA/ LVDS, Dual GbE LAN, 4 x COM, 2 x USB, CAN Bus, and 12V DC-in (-40 to 85°C optional)

OXY5319A

Intel® Tunnel Creek E620T 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Tunnel Creek E620T CPU onboard
- 512 MB DDR2 memory onboard
- 4 x COM ports
- 2 x USB ports
- CAN Bus, SMBus
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ E620T 600 MHz
Chipset	Intel® Topcliff EG20T
Memory Type	512 MB DDR2 667/800 MHz memory IC onboard
BIOS	AMI™ BIOS
Super I/O	SMSC SCH3114
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe (half -size)

Display

Chipset	Chrontel 7317B SDVO to VGA Transmitter
VGA	Yes (Max. resoultion 1280 x 1024 @ 70 Hz)
LVDS	Supports single channel 18/24-bit LVDS
Dual Independent Displays Capability	LVDS + VGA

Audio

Codec	Realtek ALC886 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x Intel® 82574IT GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
Ethernet	2 x RJ45
USB	2
COM	1 x RS232/422/485 with 5V/12V selectable

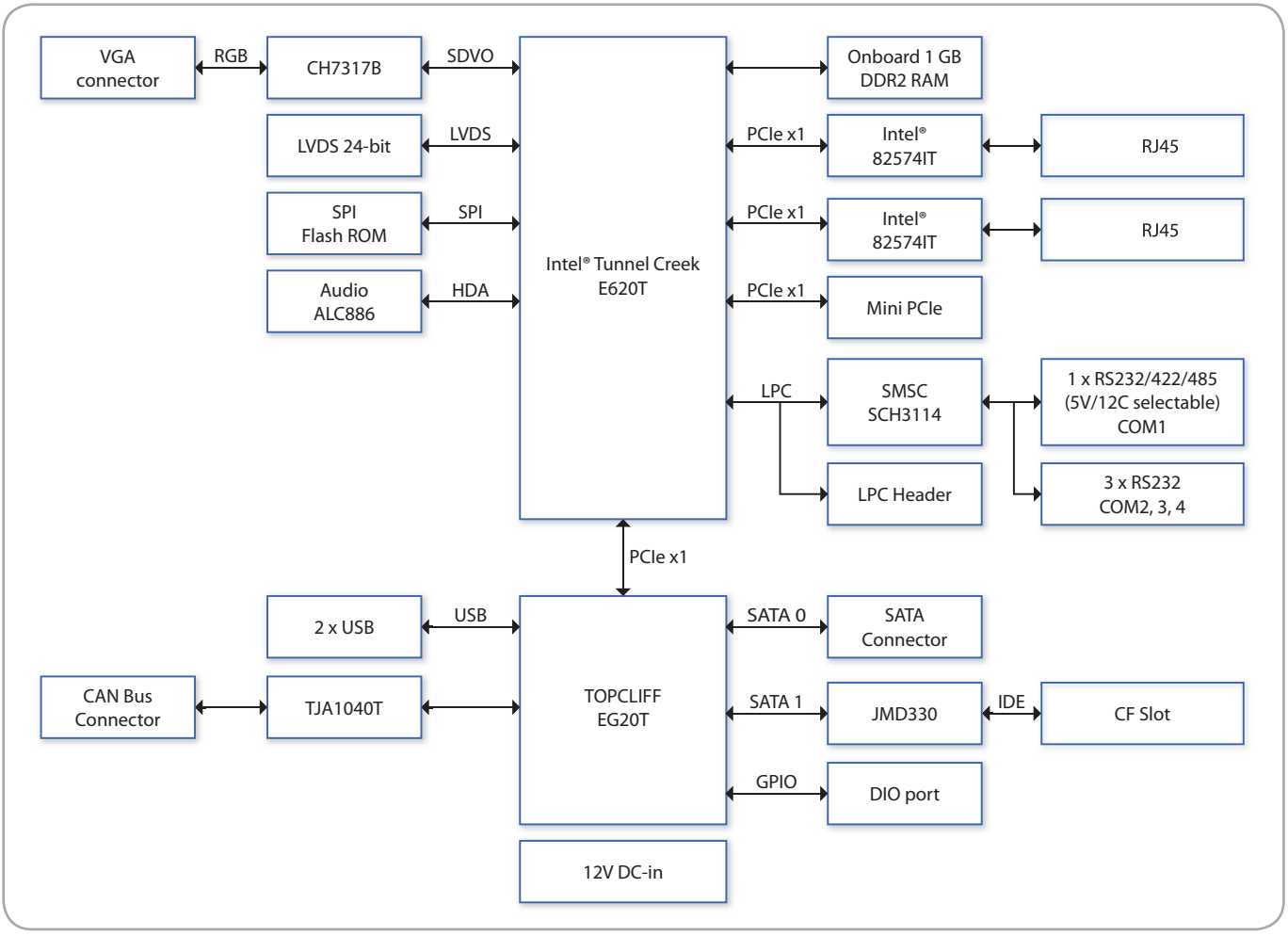
Internal I/O

SATA	1 x SATAII (3 Gb/s) 1 x 3-pin power connector
SSD	1 x Compact Flash TypeII socket
USB	2 ports on rear I/O
COM	4 x COM ports • COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~4 ports support RS232 by 1 x 10-pin header
LVDS Connector	20-pin connector
CAN Bus	1 x 10-pin header
SMBus	1 x 2-pin header
DIO	8-bit (4 in/4 out)
Audio	1 x 6-pin header for Mic-in/Line-in/Line-out

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5319A 3.5" SBC
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

Cable kit for OXY5319A

CF Card

Innodisk iCF4000 series

Apacer Industrial CF series

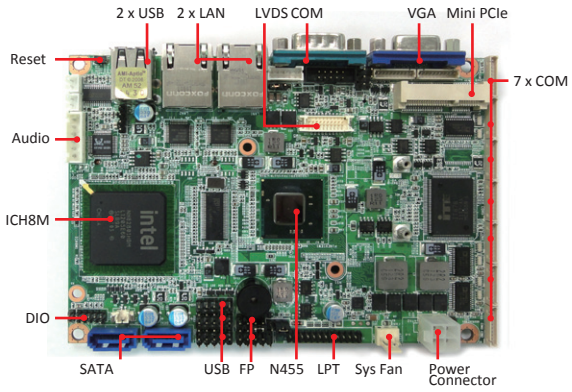
Ordering Information

Modules

Model Number	Description
OXY5319A-ET	3.5" SBC Intel® Tunnel Creek E620T + Topcliff EG20T with DDR2 onbord Memory Dual Display by VGA/ LVDS, Dual GbE LAN, 4 x COM, 4 x USB, CAN Bus, and 12V DC-in (-20 to 70°C)
OXY5319A-UT	3.5" SBC Intel® Tunnel Creek E620T + Topcliff EG20T with DDR2 onbord Memory Dual Display by VGA/ LVDS, Dual GbE LAN, 4 x COM, 4 x USB, CAN Bus, and 12V DC-in (-40 to 85°C optional)

OXY5313A

Intel® Pineview D525 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Atom™ D525 CPU onboard
- Support single 18-bit LVDS
- 1 x Mini PCIe
- 8 x COM ports
- 8 x USB ports
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ D525 1.80 GHz onboard
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800 MHz up to 4 GB
BIOS	AMI® BIOS
Super I/O	ITE IT8781F
2nd Super I/O	Fintek F81216AD
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3150 Graphic core
Onboard VGA	Yes (Max. resolution 2048 x 1536 @ 60 Hz)
LVDS	Supports single channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Independent Displays Capability	VGA + LVDS

Audio

Codec	Realtek ALC662 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x RTL8111DL GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
Ethernet	2 x RJ45
USB	2
COM	1 x RS-232/422/485 with 5V/12V selectable
Reset Button	1

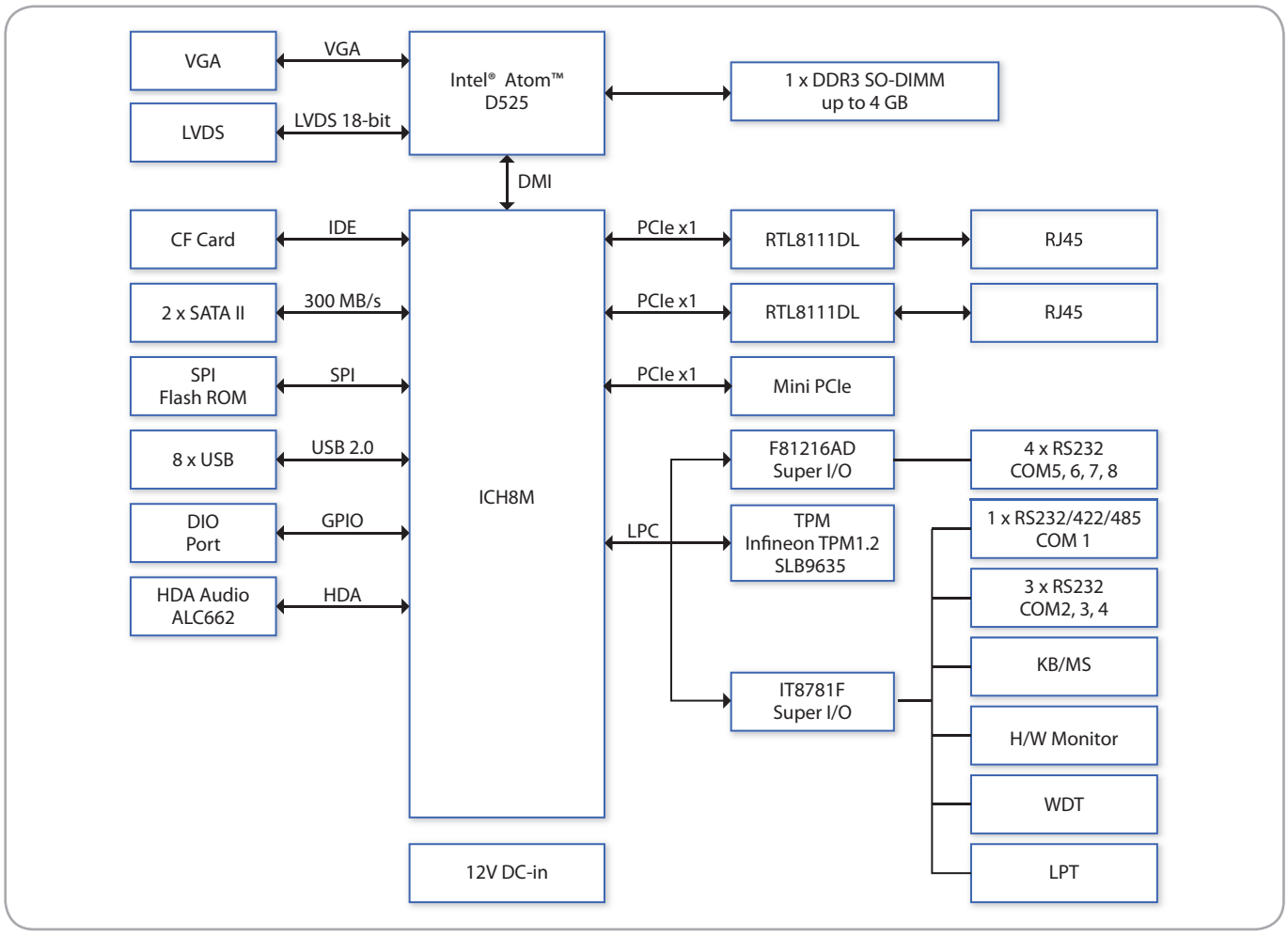
I/O Interface

SATA	2 x SATAII (3 Gb/s)
SSD	1 x Compact Flash TypeII socket
USB	8 x USB 1.1/2.0 • 2 ports on rear I/O • 6 ports by 2 x 5-pin header
COM	8 x COM ports • COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~4 port support RS232 with 5V/12V selectable by 1x 10-pin header • COM5~8 port support RS232 by 1 x 10-pin header
Audio	2 x 3-pin header for Mic-in/Line-in/Line-out 2 x 2-pin header for right and left Speaker-out
LVDS	20-pin connector
PS/2	2 x 3-pin header
DIO	8-bit (4 in/4 out)
Parallel Port	2 x 13-pin header

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5313A 3.5" SBC
- CD (Driver + user's manual)
- CPU cooler

Optional Accessories

Cable Kit

Cable kit for OXY5313A

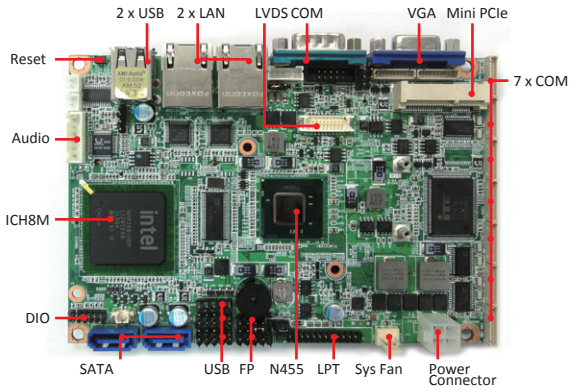
Ordering Information

Modules

Model Number	Description
OXY5313A-ET	3.5" SBC Intel® Pineview D525 CPU with DDR3 SO-DIMM, Dual Display by VGA/LVDS, Dual GbE LAN, Audio, 8 x COM, 8 x USB, and 12V DC-in (-20 to 70°C)
OXY5313A-UT	3.5" SBC Intel® Pineview D525 CPU with DDR3 SO-DIMM, Dual Display by VGA/LVDS, Dual GbE LAN, Audio, 8 x COM, 8 x USB, and 12V DC-in (-40 to 85°C optional)

OXY5315A

Intel® Pineview N455 3.5" SBC, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Supports Intel® Atom™ N455 CPU onboard
- Single/dual channel 18-bit LVDS
- 1 x Mini PCIe
- 8 x COM ports
- 8 x USB ports
- 12V DC-in
- Wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Atom™ N455 1.66 GHz
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800 MHz up to 2 GB
BIOS	AMI® BIOS
Super I/O	ITE IT8781F
2nd Super I/O	Fintek F81216AD
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3150 Graphic core
Onboard VGA	Yes (Max. resolution 1400 x 1050 @ 60 Hz)
LVDS	Supports single channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Independent Displays Capability	VGA + LVDS

Audio

Codec	Realtek ALC662 High Definition Audio Codec *2W amplifier onboard

Ethernet

Chipset	2 x RTL8111DL GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
Ethernet	2 x RJ45
USB 1.1/2.0	2
COM	1 x RS-232/422/485 with 5V/12V selectable
Reset Button	1

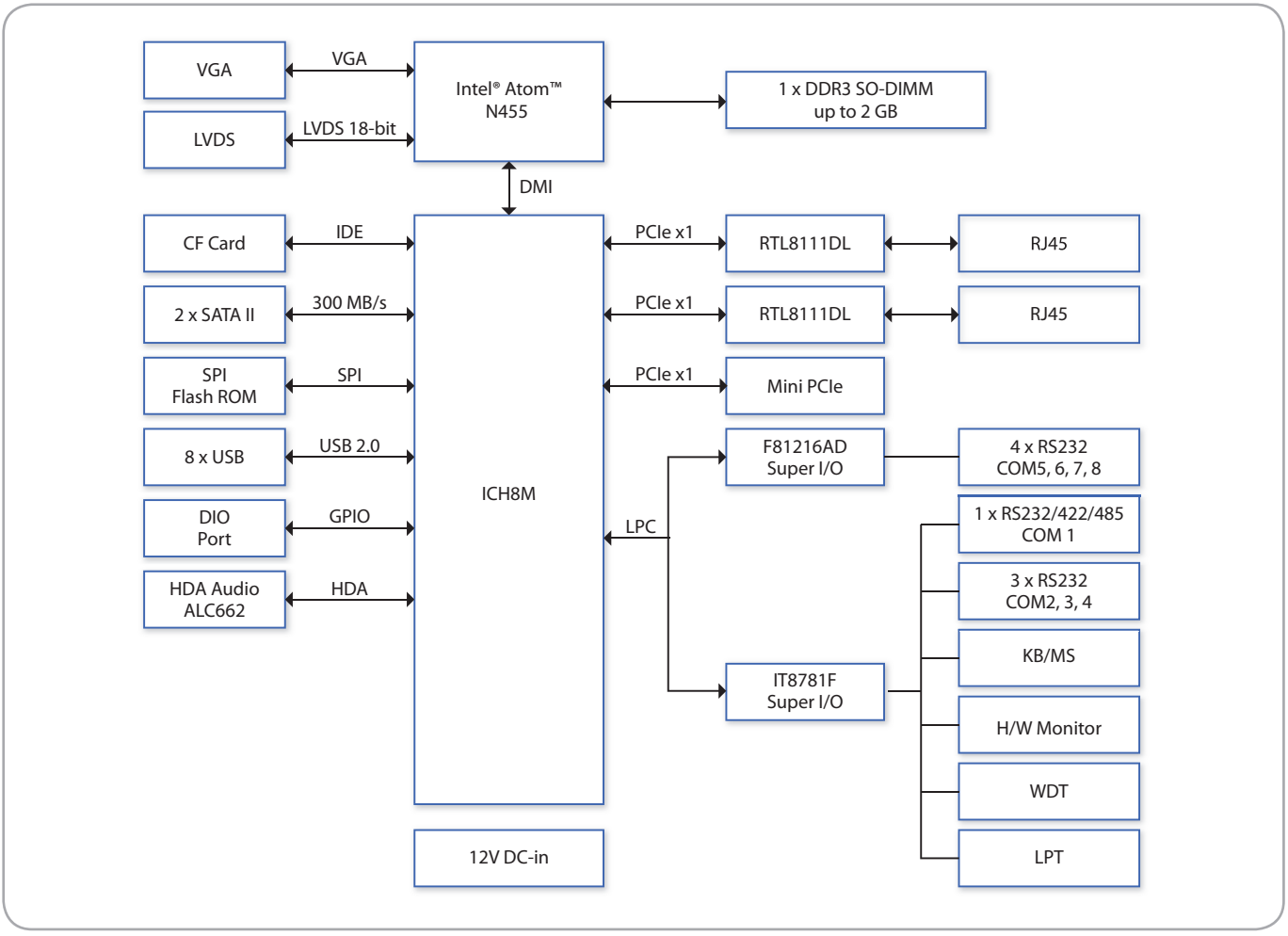
I/O Interface

SATA	2 x SATAII (3 Gb/s)
SSD	1 x Compact Flash TypeII socket
USB	8 x USB 1.1/2.0 • 2 ports on rear I/O • 6 ports by 2 x 5-pin header
COM	8 x COM ports • COM1 port supports RS232/422/485 with 5V/12V selectable on rear I/O • COM2~4 port support RS232 with 5V/12V selectable by 1x 10-pin header • COM5~8 port support RS232 by 1 x 10-pin header
Audio	2 x 3-pin header for Mic-in/Line-in/Line-out 2 x 2-pin header for right and left Speaker-out
LVDS	20-pin connector
PS/2	2 x 3-pin header
DIO	8-bit (4 in/4 out)
Parallel Port	2 x 13-pin header

Mechanical and Environment

Form Factor	3.5" SBC
Power Type	12V DC-in, 4-pin ATX power connector, AT/ATX mode support
Dimension	146 x 102 mm (5.7" x 4")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- OXY5315A 3.5" SBC
- CD (Driver + user's manual

Optional Accessories

Cable Kit

Cable kit for OXY5315A

Thermal Kit

Passive heatsink

CPU cooler

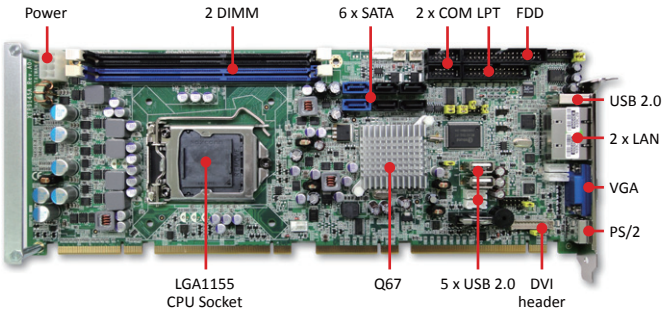
Ordering Information

Modules

Model Number	Description
OXY5315A-ET	3.5" SBC Intel® Pineview N455 CPU with DDR3 SO-DIMM, Dual Display by VGA/LVDS, Dual GbE LAN, Audio, 8 x COM, 8 x USB, and 12V DC-in (-20 to 70°C)
OXY5315A-UT	3.5" SBC Intel® Pineview N455 CPU with DDR3 SO-DIMM, Dual Display by VGA/LVDS, Dual GbE LAN, Audio, 8 x COM, 8 x USB, and 12V DC-in (-40 to 85°C optional)

XTR9145A

Intel® Core™ i7/i5/i3 PICMG1.3 Full-size SHB with Intel® Sandy Bridge Q67 Chipset



Main Features

- Supports Intel® LGA1155 Core™ i7/i5/i3 processor
- Supports Dual Channel DDR3 1066/1333 MHz up to 16 GB
- Supports Intel® AMT 7.0
- PCIe Gen2 at 5GT/s
- 10 x USB ports
- VGA + DVI-D (pin-header)
- 1 x LPT, 1 x floppy

Specifications

System

CPU Type	Intel® LGA 1155 socket for Core™ i7/i5/i3 processor
Chipset	Intel® Q67 PCH
Memory Type	2 x 240-pin DIMM dual channel DDR3 1066/1333 MHz, up to 16 GB
BIOS	AMI® UEFI BIOS
Super I/O	W83627 DHG
iAMT	Supports iAMT 7.0
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Interface	1 x PCIe x16 1 x PCIe x4 4 x PCI

Display

Chipset	Intel® HD Grapics 3000 integrated graphics engine
Onboard VGA	Yes (Max. resolution 2048 x 1536)
Dual Independent Display Capability	VGA+DVI-D (pin-header)

Audio

Codec	Realtek ALC662 Integrated High Definition Audio Codec

Ethernet

Ethernet	Intel® 82579LM & 82574L GbE
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
Ethernet	2 x RJ45
USB	1
PS/2	1 x PS/2 keyboard and mouse

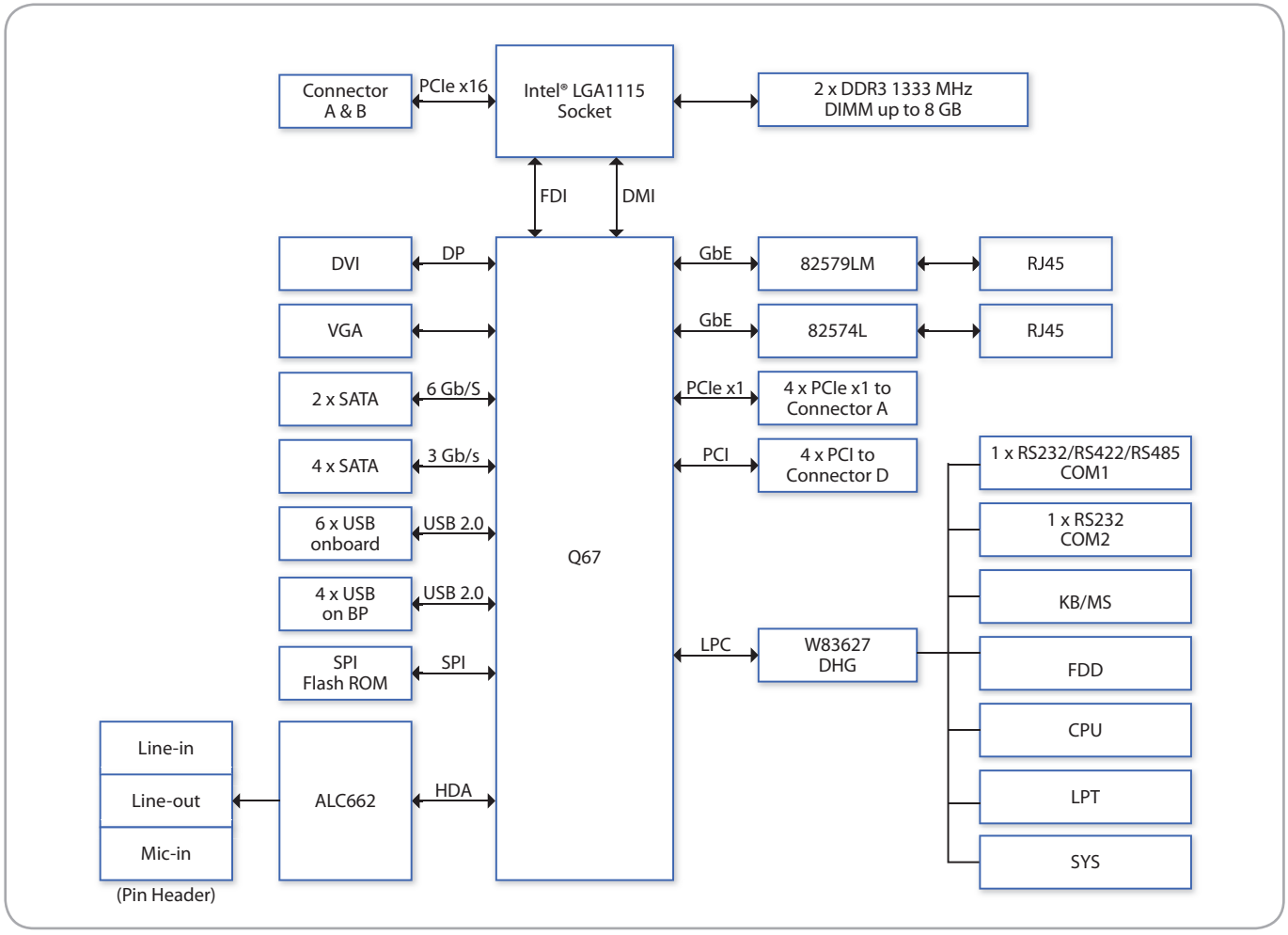
I/O Interface

SATA	2 x SATA III (6 Gb/s) 4 x SATA II (3Gb/s S/W RAID 0,1, 5, 10)
USB	10 x USB • 1 port on rear I/O • 2 ports by vertical • 3 ports by pin header • 4 ports through golden finger
COM	2 x COM ports • 1 x RS232/422/485 • 1 x RS232
Fan	CPU/System fan connectors
SMBus	System Management Bus for advanced monitoring/control

Mechanical and Environment

Form Factor	PICMG 1.3 SHB
Power Type	Power from backplane through golden finger 4-pin, 12V power connector
Dimension	338 x 126 mm (13.3" x 4.9")
Operating Temp.	0 to 60°C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- XTR9145A PICMG 1.3 SHB
- 1 x COM + print cable W/bracket
- 1 x SATA cable
- 1 x DVI-D cable w/bracket
- 1 x Audio cable w/bracket
- 1 x PS2 cable
- CD (Driver + user's manual)

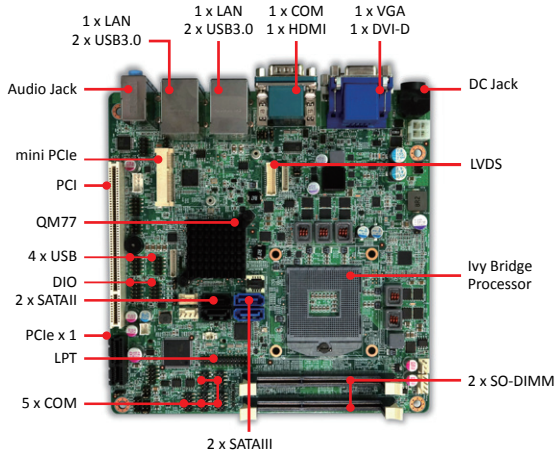
Ordering Information

Modules

Model Number	Description
XTR9145A	Full-size PICMG SHB 1.3 Intel® LGA1155 Core™ i7/ i5 / i3 with DDR3 SDRAM, VGA, DVI-D, Dual PCIe GbE LAN, 10 x USB, 6 x SATA, and Audio

INS8335A

Intel® Ivy Bridge QM77 Mini-ITX Industrial MB, 9V to 24V DC-in, Wide Temp. -20 to 70°C (-40 to 85°C optional)



Main Features

- Intel® 22nm Ivy Bridge Processor (Mobile)(rPGA988)
- 2 x DDR3 SO-DIMM up to 8 GB
- Muliti-display: VGA, DVI-D, LVDS, HDMI
- 1 x PCIe x1, 1 x Mini PCIe, 1 x PCI
- 4 x SATA (2 x SATAIII, 2 x SATAII)
- 8 x USB ports
- 6 x COM ports
- 16-bit DIO (4 in/4 out)
- 9V to 24V DC-in
- Supports wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988)
Chipset	Intel® QM77
Memory Type	2 x 204-pin SO-DIMM support up to 8 GB dual channel DDR3 1333/1600, Non-ECC
BIOS	AMI® UEFI BIOS
Supoer I/O	F81866D-I
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x PCIe x1 1 x Mini PCIe 1 x PCI

Display

Chipset	Integrated GFX in Ivy Bridge processor
Onboard VGA	Yes, Max: SXGA 2048 x1536 @ 60 Hz
LVDS	Dual channel 24-bit LVDS, Max. 1920 x 1200
Onboard DVI-D	Yes, (Max. resolution 1920 x 1200)
Onboard HDMI	Yes, (Max. resolution 1920 x 1200)
Independent Display Capability	VGA, LVDS, DVI, HDMI

Audio

Codec	Realtek ALC892 High Definition Audio Codec

Ethernet

Chipset	Intel® 82579LM & 82574IT GbE
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
DVI-D	1
HDMI	1
Ethernet	2 x RJ45
USB	4 x USB 3.0
Audio	Mic-in, Line-in, Line-out
COM Port	1x RS232/422/485 with 5V/12V selectable
DC Jack	1

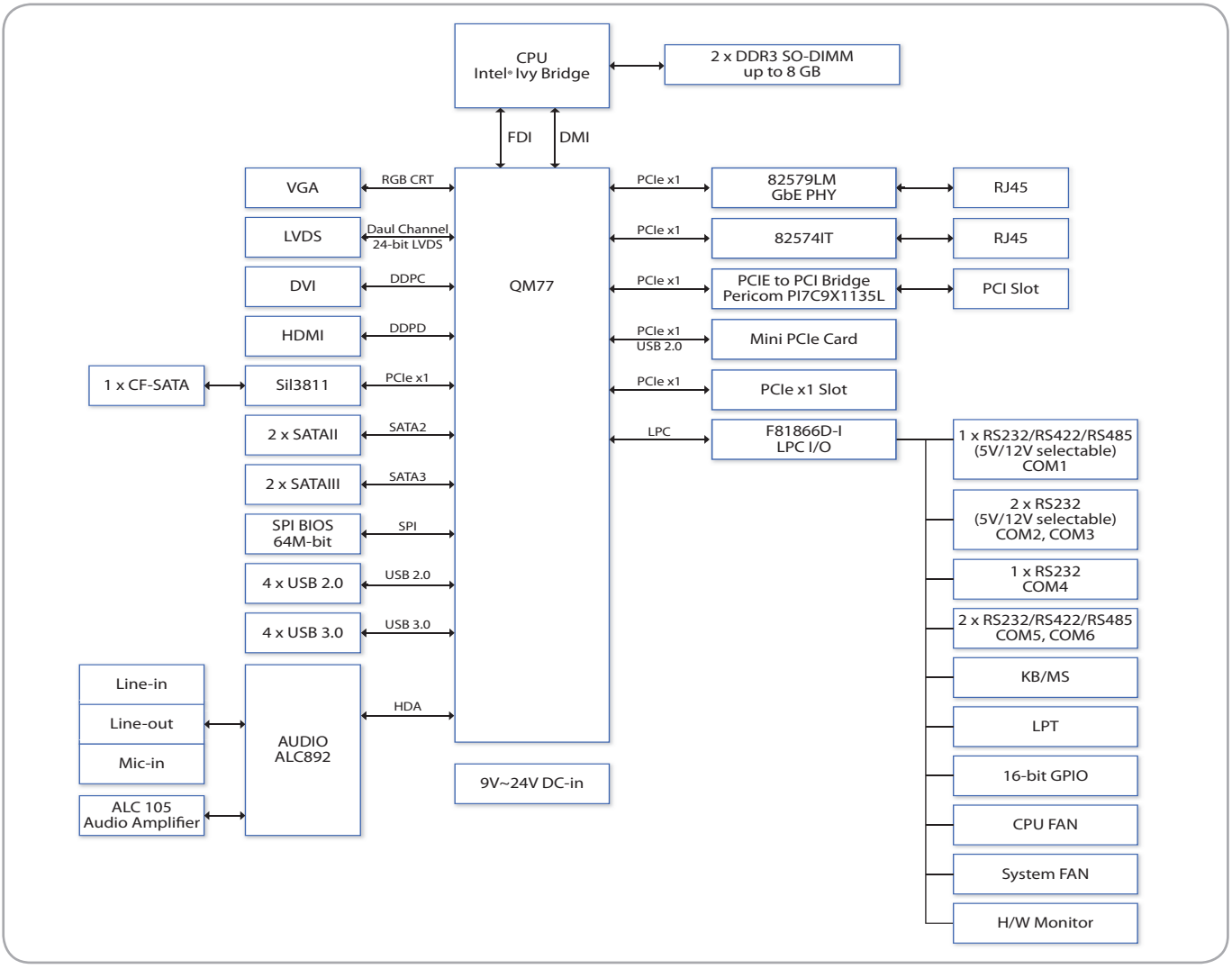
I/O Interface

SATA	2 x SATAIII (6 Gb/s), 2 x SATAII (3 Gb/s)
CF-SATA	1
LVDS	30-pin connector
USB	8 x USB
	• 4 x USB 3.0 ports on rear I/O • 4 x USB 2.0 ports by pin header
COM	6 x COM ports
	• COM1 port RS232/422/485 with 5V/12V selectable on rear I/O • COM2~3 ports RS232 with 5V/12V selectable by pin header • COM4 port supports RS232 by pin header • COM5~6 ports RS232/422/485 by pin header
DIO	16-bit (4 in/4 out)
PS/2	1 x pin-header for PS/2 keyboard and mouse
Fan	1 x CPU fan, 1 x System fan
Parallel Port	2 x 13-pin header

Mechanical and Environment

Form Factor	Mini-ITX
Power Type	9V to 24V DC-in
Dimension	170 x 170 mm (6.7" x 6.7")
Operating Temp.	-20 to 70°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- INS8335A Mini-ITX Industrial MB
- I/O shield
- 1 x SATA cable
- 2 x COM ports cable w/bracket
- 1 x USB cable
- CD (Driver + user's manual)

Optional Accessories

Cable Kit

CPT Cable

Thermal Kit

CPU cooler

CF-SATA Card

Innodisk CF-SATA Series

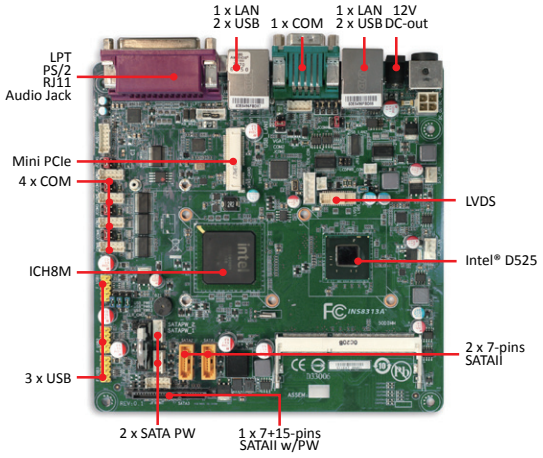
Ordering Information

Modules

Model Number	Description
INS8335A-ET	Mini-ITX Industrial MB Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988) with DDR3 SO-DIMM, Multi-Display by VGA, DVI-D, HDMI, LVDS, Dual Intel® GbE LAN, 6 x COM, and 9 to 24V DC-in (-20 to 70°C)
INS8335A-UT	Mini-ITX Industrial MB Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988) with DDR3 SO-DIMM, Multi-Display by VGA, DVI-D, HDMI, LVDS, Dual Intel® GbE LAN, 6 x COM, and 9 to 24V DC-in (-40 to 85°C optional)

INS8313A

Intel® Pineview D525 Mini-ITX Industrial MB, 12V DC-in



Specifications

System

CPU Type	Intel® Atom™ D525 1.8 GHz
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 MHz up to 4 GB
BIOS	AMI® BIOS
Super I/O	ITE ITE87821
2nd Super I/O	Fintek F81214R
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x Mini PCIe

Display

Chipset	Integrated Intel® GMA3150 GFX Render core
Onboard VGA	Yes (Max. resolution 2048 x 1536)
LVDS	Supports single channel 18-bit LVDS (Max. resolution 1366 x 768)
Dual Independent Display Capability	VGA + LVDS

Audio

Codec	Realtek ALC269 High Definition Audio Code

Ethernet

Chipset	2 x RTL 8111E GbE LAN
WOL	Yes
Boot from LAN	Yes for PXE

Main Features

- Supports Intel® Pineview D525 CPU onboard
- VGA/LVDS dual display
- 1 x Mini PCIe slot
- Dual GbE LAN
- 9 x USB ports
- 6 x COM ports with 5V/12V selection
- 1 x RJ11 supports cash drawer
- 12V DC-in & 12V DC-out

Rear I/O

VGA	1
Ethernet	2 x RJ45
Audio	1 x Speaker-out
USB	4
COM	1 x RS232/422/485 with 5V/12V selectable
PS/2	1
RJ11	1 supports cash drawer
LPT	1

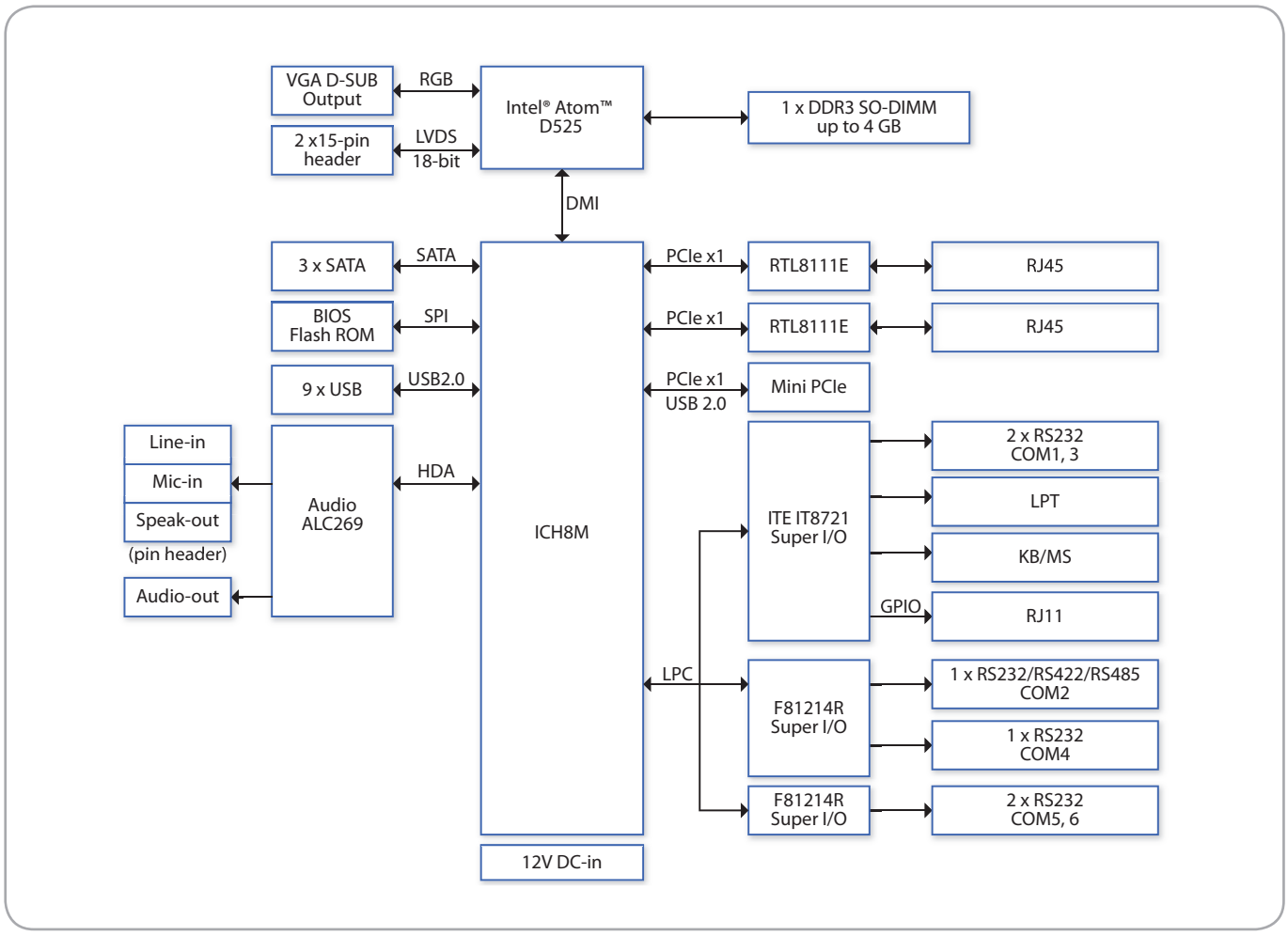
Internal I/O

SATA	3 x SATAII (3 Gb/s)
	• 2 x 7-pin SATA II • 1 x 7-pin + 15-pin SATAII
USB	9 x USB 1.1/2.0
	• 5 ports by 2 x 5-pin header 2.54 mm pitch • 4 ports on rear I/O
COM	6 x COM ports
	• COM1 port supports RS232 (0/5/12V) • COM2 port supports RS232/422/485 (0/5/12V) • COM3~COM6 ports support RS232 (0/5/12V) • COM4 port supports VFD mode
LVDS	20-pin connector
Fan	CPU/System fan connector

Mechanical and Environment

Form Factor	Mini-ITX Industrial MB
Power Type	12V DC-in, AT/ATX mode support
Dimensions	170 x 170 mm (6.7" x 6.7")
Operating Temp.	0 to 60 °C
Storage Temp.	-20 to 85°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- INS8313A Mini-ITX Industrial MB
- 1 x SATA cable
- 1 x COM port cable (4 ports)
- 1 x USB cable
- CD (Driver + user's manual)

Ordering Information

Modules

Model Number	Description
INS8313A	Mini-ITX Industrial MB on Intel® Pineview D525 CPU onboard with DDR3 SO-DIMM, Dual Display by VGA/ LVDS, Dual GbE, Audio, 6 x COM, 9 x USB, and 12V DC-in

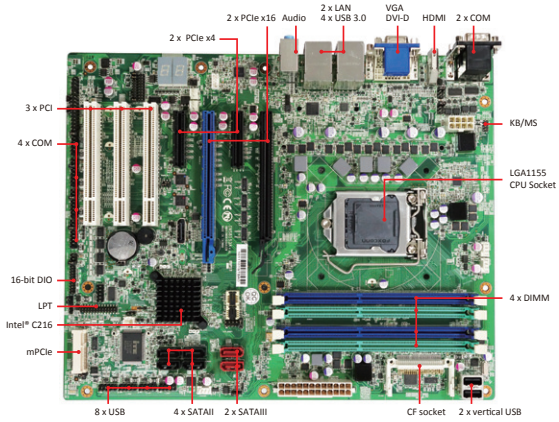
Optional Accessories

Thermal Kit

CPU cooler

INS8153A

Intel®C216 ATX Industrial MB, supporting Xeon E3, Ivy Bridge CPU



Main Features

- Supports Intel® LGA 1155 22nm Ivy Bridge Processor
- Multi Display: VGA, DVI-D, HDMI
- Four channel DDR3 1066/1333/1600 MHz, up to 32 GB
- 2 x PCIe x16, 2 x PCIe x4, 3 x PCI,
  1 x mPCIe (optional mSATA supported)
- 2 x SATAIII, 4 x SATAII
- 14 x USB ports
- 6 x COM ports
- 16-bit DIO

Specifications

System

CPU Type	Intel® 22nm Ivy Bridge processor Xeon E3-1275v2 3.5 GHz (95W) Xeon E3-1225v2 3.2 GHz (95W) Core™ i3-3220 3.3 GHz(65W) Pentium G2120 3.1 GHz (65W)
Chipset	Intel® C216
Memory Type	4 x 240-pin ECC/Non-ECC DIMM dual channel DDR31066/1333/1600 MHz, up to 32 GB
BIOS	AMI® UEFI BIOS
Super I/O	ITE8728F
2nd I/O	Fintek F81216AD
iAMT	iAMT 8.0
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	2 x PCIe x16 2 x PCIe x4 3 x PCI 1 x mPCIe (optional mSATA supported)

Display

Chipset	Intel® HD Graphics 4000 intergrated Graphic Engine
Onboard VGA	Yes (Max resolution 2560 x 1600 @ 60 Hz)
Independent Display Capability	VGA, DVI-D, HDMI

Audio

Codec	Realtek ALC887 HDA Codec

Ethernet

Chipset	1 x Intel® 82579LM & 1 x Intel® 82574L GbE
WOL	Yes
Boot from LAN	Yes

Rear I/O

VGA	1
DVI-D	1
HDMI	1
Ethernet	2 x RJ45
Audio	Line-out, Mic-in, Line-in
USB	4 x USB 3.0
COM1/2	2 x RS232/422/485 with 5V/12V selectable

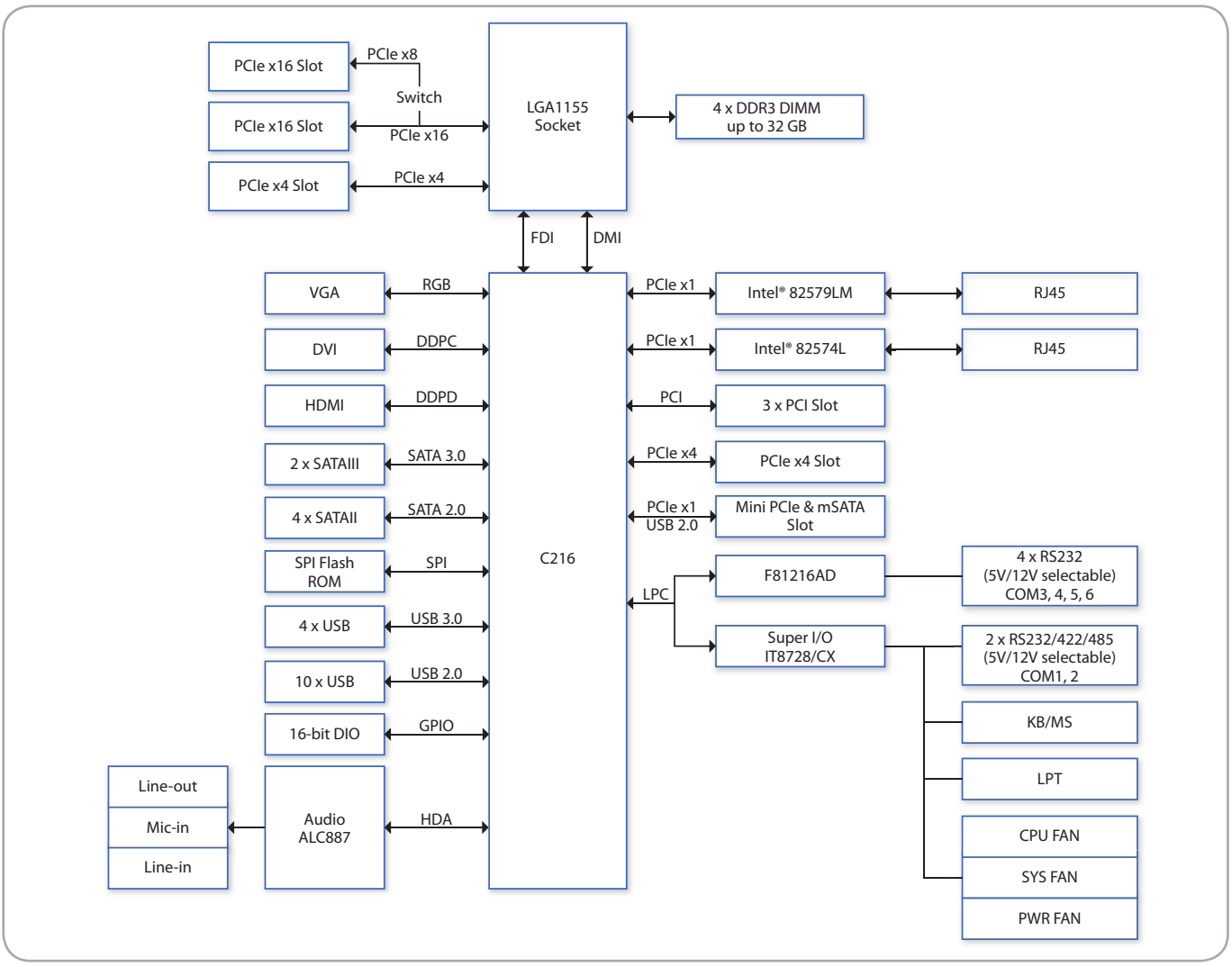
I/O Interface

SATA	2 x SATAIII (6 Gb/s) 4 x SATAII (3 Gb/s)
CF-SATA	1
USB	14 x USB • 4 x USB 3.0 ports on rear I/O • 2 x Vertical USB ports onboard • 8 x onboard by pin header
COM	6 x COM ports • COM1~2 ports support RS232/422/485 with 5V/12V selectable on rear I/O • COM3~6 ports support RS232 with 5V/12V selectable by pin header
FAN	1 x CPU fan 3 x System fan
DIO	16-bit (8 in/8 out)
PS/2	1 x pin header for PS/2 keyboard and mouse
Parallel Port	2 x 13-pin header

Mechanical and Environment

Form Factor	ATX Industrial MB
Power Type	ATX (24-pin + 8-pin)
Dimension	305 x 244 mm (12" x 9.6")
Operating Temp.	0 to 60°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- INS8153A ATX Industrial MB
- I/O shield
- 1 x SATA cable
- 1 x LPT cable with I/O bracket
- 2 x COM port cable with I/O bracket
- 1 x USB (2 ports) cable with I/O bracket
- CD (Driver + user's manual)

Optional Accessories

CF-SATA Card

Innodisk CF-SATA Series

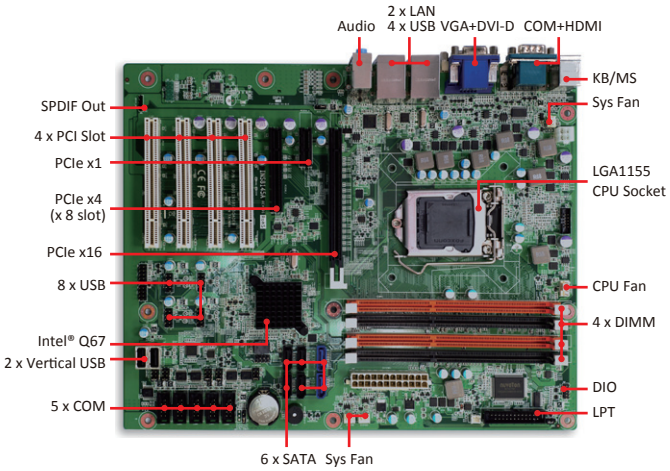
Ordering Information

Modules

Model Number	Description
INS8153A	ATX Industrial MB supports 22nm Intel® LGA 1155 Ivy Bridge processor, VGA/DVI-D/HDMI, Dual GbE LAN, 6 x COM, 14 x USB, 16-bit DIO

INS8145A

Intel® Sandy Bridge Q67 ATX Industrial MB, Intel® Core™ i7/i5/i3 Processor



Main Features

- Supports Intel® LGA 1155 Core™ i7/ i5/ i3 processor
- Muti-display: VGA + DVI-D, VGA + HDMI, HDMI + DVI-D
- Dual channel DDR3 1066/1333 MHZ up to 32 GB
- Intel® PCIe GbE with Intel® AMT 7.0 supported
- PCIe x16, PCIe x4, PCIe x1, 4 x PCI slot
- 2 x SATAIII + 4 x SATAII
- 14 x USB ports
- 6 x COM ports

Specifications

System

CPU Type	Intel® LGA 1155 socket Core™ i7/i5/i3 processor
Chipset	Intel® Q67 Express Chipset (Cougar Point) Controller Hub
Memory Type	4 x 240-pin 1066/1333 MHz Dual channel DDR3 SDRAM unbuffered DIMM support (Max. 32 GB)
BIOS	AMI® UEFI BIOS
Super I/O	NUVOTON NCT6776F
2nd IO	F81216AD
iAMT	Support iAMT 7.0
Watchdog	1-255 sec. or 1-255 min. software programmable, can generated system reset
Expansion Slot	1 x PCIe x16 Gen.2 1 x PCIe x4 (x8 slot, one side open) 1 x PCIe x1 4 x PCI

Display

Chipset	Intel® HD Grapics 2000 Integrated Graphics Engine
Display Interface	VGA/HDMI/DVI-D Integrated in the Intel® Q67

Audio

Codec	ALC892 High Definition Audio Codec with Mic-in, Line-in, Line-out

Ethernet

Chipset	Intel® 82579LM & 82574L GbE
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
DVI-D	1
HDMI	1
Ethernet	2
Audio	Line-out, Mic-In, Line-in
USB	4
COM1	1 x RS232/422/485 with 5V/12V selection
PS/2	1 x PS/2 Keyboard and mouse

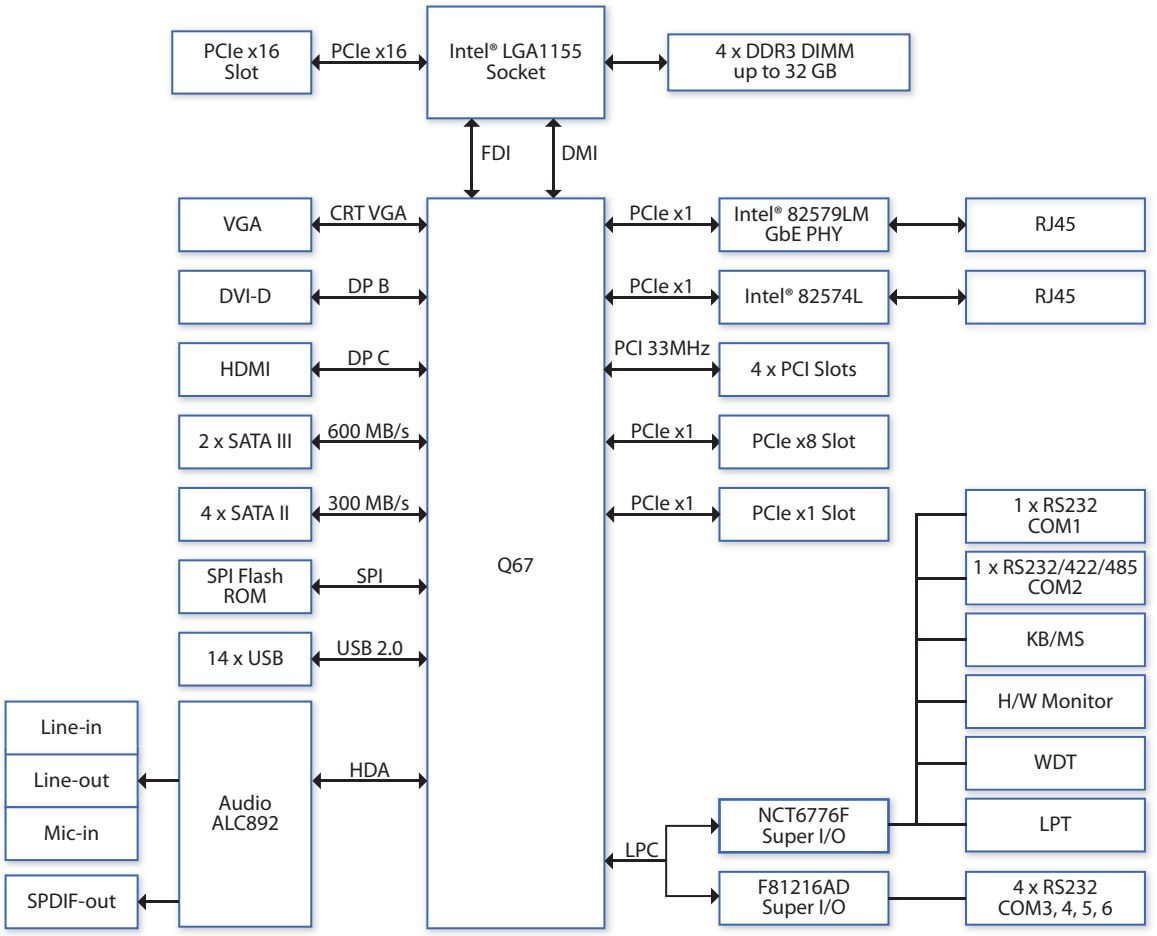
I/O Interface

SATA	2 x SATAIII (6 Gb/s, reserve space) 4 x SATAII (3 Gb/s S/W RAID 0, 1, 5, 10)
USB	14 x USB 1.1/2.0 port • 4 port on front I/O • 8 port by 2 x 5-pin header • 2 x Vertical USB connectors
COM	6 x COM ports • COM1 supports RS232 with 5V/12V selectable on rear I/O • COM2 supports RS232/422/485 with 5V/12V selectable by pin header • COM3~6 support RS232 with 5V/12V selectable by pin header
FAN	CPU FAN (1 x 4-pin), System FAN (1 x 3-pin)
DIO	8-bit (4 in/4 out)

Mechanical and Environment

Form Factor	ATX IMB
Power Type	ATX (24-pin + 4-pin)
Dimension	305 x 244 mm (12" x 9.6")
Operating Temp.	-20 to 70°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- INS8145A ATX Industrial MB
- I/O shield
- 1 x SATA cable
- 2 x COM ports cable w/bracket
- 1 x USB cable
- CD (Driver + user's manual)

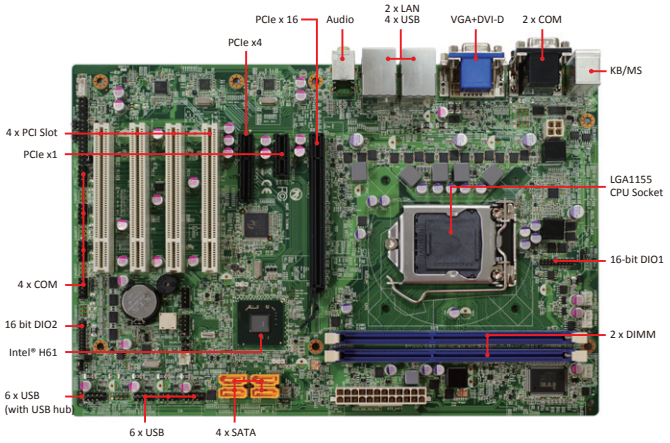
Ordering Information

Modules

Model Number	Description
INS8145A	ATX Industrial MB supports 32nm Intel® LGA 1155 Core™ i7/ i5/ i3 with DDR3 SDRAM HDMI/DVI/VGA display, Dual PCIe GbE, Audio, 14 x USB, and 6 x SATA

INS8147A

Intel® Sandy Bridge H61 ATX Industrial MB, Intel® Core™ i7/i5/i3 Processor



Main Features

- Supports Intel® LGA 1155 Core™ i7/ i5/ i3 processor
- Dual display: VGA + DVI-D
- Dual channel DDR3 1066/1333 MHz, up to 8 GB
- PCIe x16, PCIe x4, PCIe x1, 4 x PCI slot
- 4 x SATAII
- 10 x USB ports
- 6 x COM ports
- 32-bit DIO

Specifications

System

CPU Type	Intel® LGA 1155 socket Core™ i7/i5/i3 processor
Chipset	Intel® H61
Memory Type	2 x 240-pin DIMM dual channel DDR3 1066/1333 MHz, up to 8 GB (1600 with Ivy Bridge)
BIOS	AMI® UEFI BIOS
Super I/O	ITE8728F
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x PCIe x16 Gen.2 (Gen.3 with Ivy Bridge) 1 x PCIe x4 (x1 signal) 1 x PCIe x1 4 x PCI

Display

Chipset	Intel® HD Graphics 2000/3000
Onboard VGA	Yes (Max. resolution 2048 x 1536)
Dual Independent Display Capability	VGA + DVI-D

Audio

Codec	Realtek ALC887 High Definition Audio Codec

Ethernet

Chipset	2 x Realtek 8111E
Disable LAN through BIOS	Yes
WOL	Yes
Boot from LAN	Yes for PXE

Rear I/O

VGA	1
DVI-D	1
Ethernet	2 x RJ45
Audio	Line-out, Mic-in or Line-in, Line-out, Mic-in
USB	4 x USB
COM1/2	1 x RS232/422/485 1 x RS232
PS/2	1 x keyboard and mouse

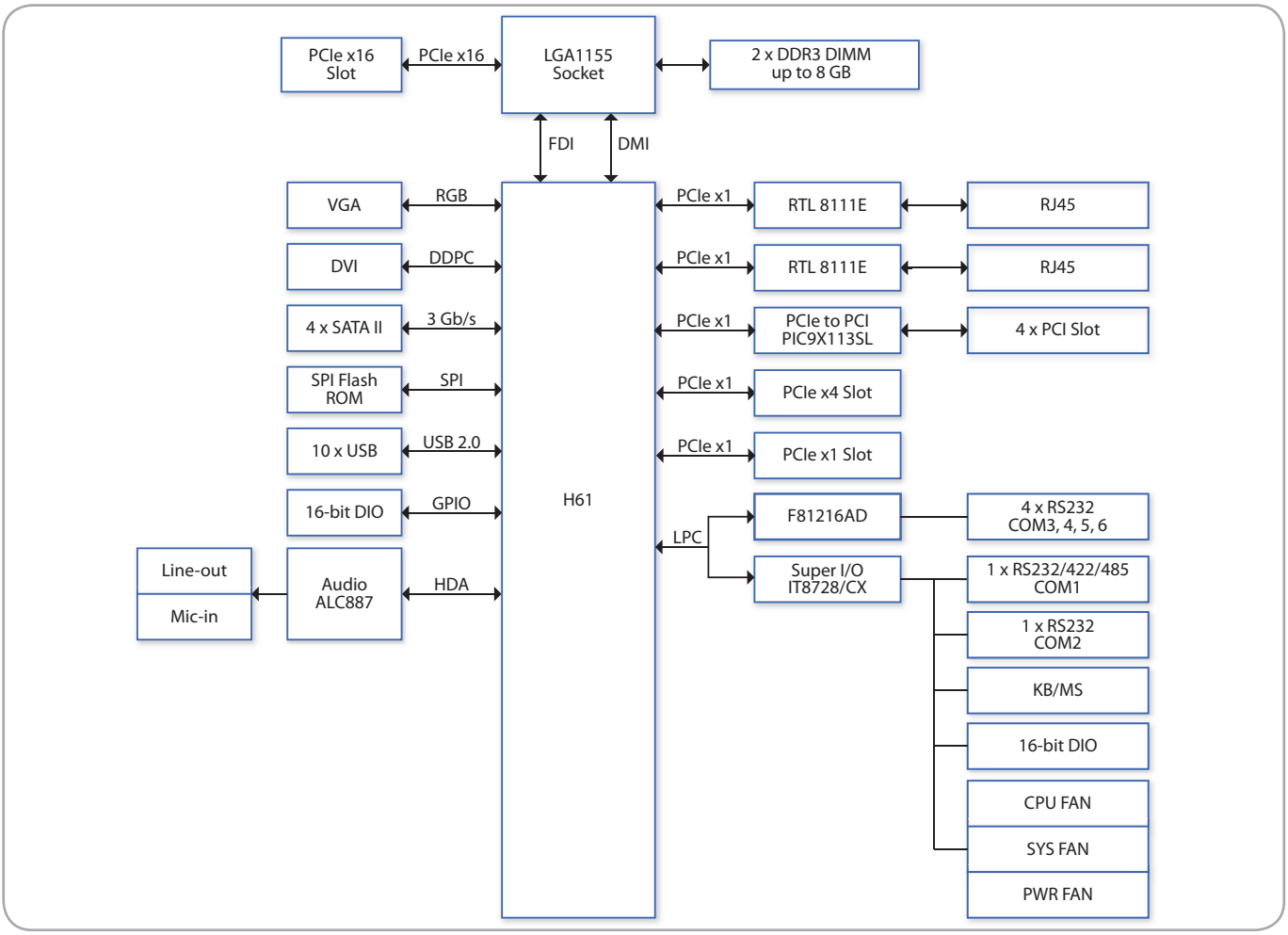
I/O Interface

SATA	4 x SATAII (3 Gb/s)
USB	10 x USB 1.1/2.0 port
	• 4 ports on rear I/O • 6 ports by 2 x 5-pin header
COM	6 x COM ports
	• COM1 port supports RS232/422/485 on rear I/O • COM2 port supports RS232 on rear I/O • COM3~COM6 ports support RS232
FAN	1 x CPU fan 2 x System fan
DIO	32-bit (16 in/16 out)

Mechanical and Environment

Form Factor	ATX Industrial MB
Power Type	ATX (24-pin + 4-pin)
Dimension	305 x 206 mm (12" x 8.1")
Operating Temp.	0 to 60°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing

Block Diagram



Packing list

- INS8147A ATX Industrial MB
- I/O shield
- 1 x SATA cable
- 2 x COM port cable w/bracket
- 1 x USB cable
- CD (Driver + user's manual)

Ordering Information

Modules

Model Number	Description
INS8147A	ATX Industrial MB supports 32nm Intel® LGA 1155 Core™ i7/ i5/ i3, VGA/DVI-D, Dual GbE LAN, 6 x COM, 10 x USB, 32-bit DIO

ROC335A

Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7 Processor, 9V to 24V DC-in, Wide Temp. -20 to 70°C (-40 to 70°C optional)

Main Features

- Supports Intel® 22nm Ivy Bridge Processor (Mobile, rPGA988)
- 2 x DDR3 SO-DIMM up to 16 GB
- Supports 2.5" SATA HDD/SSD & CF-SATA socket
- 5 x COM ports
- 4 x USB 3.0, 4 x USB 2.0
- Dual GbE LAN ports
- 9V ~ 24V DC-in
- Wide temperature -20 to 70°C (-40 to 70°C optional)

Specifications

System

CPU Type	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988)
Chipset	Intel® QM77
Memory Type	2 x 204-pin SO-DIMM DDR3 1333/1600 up to 16 GB
BIOS	AMI® BIOS
Expansion Slot	1 x Mini PCIe slot
Storage	1 x 2.5" SATA HDD/SSD 1 x CF-SATA socket

Front I/O

USB	4 x USB 2.0
COM	4 x RS232
Power Button	Yes
Power LED	Yes
HDD LED	Yes
Audio	Mic-in, Line-out

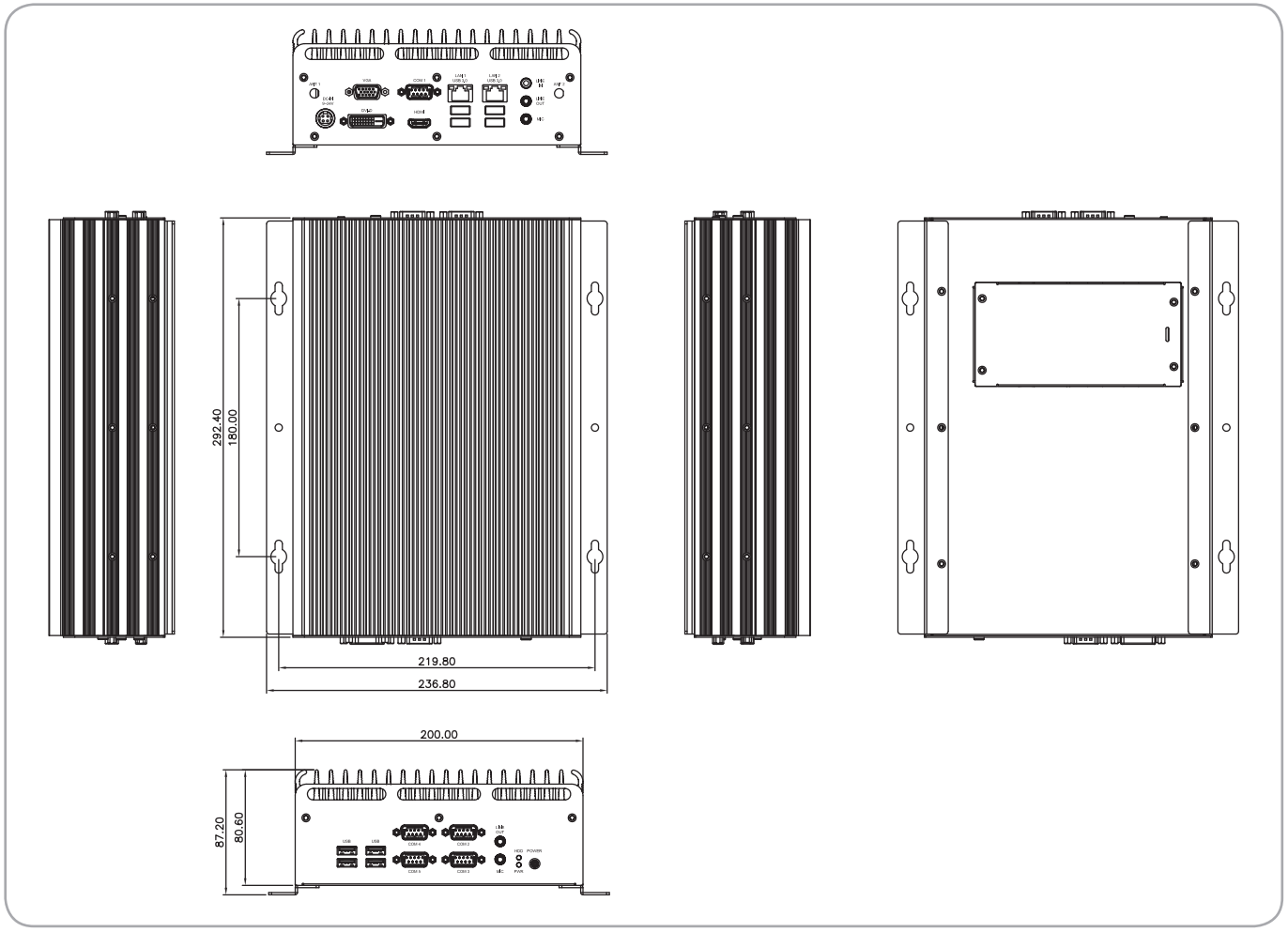
Rear I/O

VGA	1
DVI-D	1
HDMI	1
Ethernet	2 x RJ45
USB	4 x USB 3.0
Audio	Mic-in, Line-in, Line-out
COM	1 x RS232/422/485
Antenna	Reserved two antenna holes
DC-Jack	1

Mechanical & Environment

Construction	Aluminum chassis with fanless design
Power Requirement	9V to 24V DC-in
Dimension (W x H x D)	237 x 88 x 293 mm (9.3" x 3.5" x 11.5")
Operating Temp.	-20 to 70°C (ambient with air flow)
Storage Temp.	-40 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- ROC335A Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

19V, 120W, AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
ROC335A-ET	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988), Wide Temp. Fanless Rugged System, 9V to 24V DC-in (-20 to 70°C)
ROC335A-UT	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988), Wide Temp. Fanless Rugged System, 9V to 24V DC-in (-40 to 70°C)

ROC316A

Intel® Atom™ N2800 Fanless Rugged System, 9V to 30V DC-in, Wide Temp. -20 to 70°C (-40 to 70°C optional)

Main Features

- Supports Intel® Atom N2800 (1.86 GHz)
- 1 x 204-pin SO-DIMM DDR3 800/1066 up to 2 GB
- Supports 2.5" SATA HDD/SSD & CFast socket
- 5 x COM ports
- Dual GbE LAN ports
- 9V to 30V DC-in
- Wide temperature -20 to 70°C (-40 to 70°C optional)
- Ultra slim design (H: 51.0 mm)

Specifications

System

CPU Type	Intel® Atom™ N2800 1.86 GHz
Chipset	Intel® NM10
Memory Type	1 x 204-pin SO-DIMM DDR3 800/1066 up to 2 GB
BIOS	AMI® BIOS
Expansion Slot	1 x Mini PCIe slot
Ethernet	2 x RTL8111E GbE LAN
Storage	1 x 2.5" SATA HDD/SSD drive bay 1 x external CFast socket

Front I/O

USB	4
COM	4 x RS232 COM2~4 with 5V/12V selectable
Power Button	Yes
Power LED	Yes
HDD LED	Yes
Audio	Mic-in, Line-out

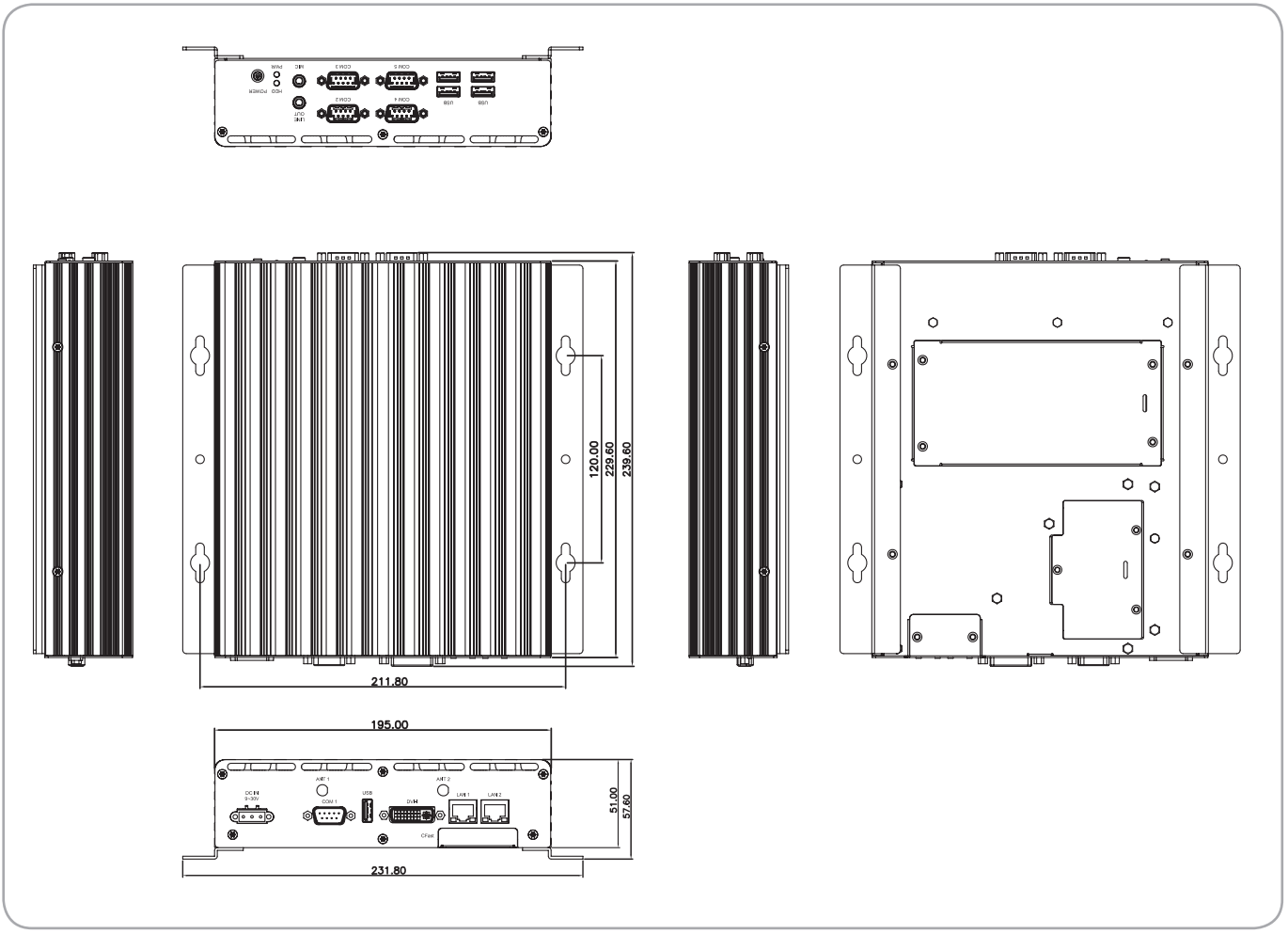
Rear I/O

DVI-I	1
Ethernet	2 x RJ45
USB	1
COM	1 x RS232/422/485 with 5V/12V selectable
Antenna	Reserved two antenna holes
Power Input	9V to 30V DC-in (By terminal block)
CFast Socket	1

Mechanical & Environment

Construction	Aluminum chassis with fanless design
Power Requirements	9V to 30V DC-in
Dimension (W x H x D)	195 x 51 x 230 mm (7.7" x 2" x 9")
Operating Temp.	-20 to 70°C (ambient with air flow)
Storage Temp.	-40 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- ROC316A Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

12V, 60W, AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
ROC316A-ET	Fanless Rugged System with Intel® Atom™ N2800 CPU, DVI-I, Dual GbE LAN, Audio, 5 x COM, 5 x USB, and 9V~30V DC-in (-20 to 70°C)
ROC316A-UT	Fanless Rugged System with Intel® Atom™ N2800 CPU, DVI-I, Dual GbE LAN, Audio, 5 x COM, 5 x USB, and 9V~30V DC-in (-40 to 70°C, optional)

ROC315B

Intel® Atom™ N455 Fanless Rugged System, 9V to 30V DC-in, Wide Temp. -20 to 70°C (-40 to 70°C optional)

Main Features

- Supports Intel® Atom N455 (1.66 GHz)
- 1 x 204 pin SO-DIMM DDR3 800 up to 2 GB
- Supports 2.5" SATA HDD/SSD & CF card
- 5 x COM ports
- Dual GbE LAN ports
- 9V to 30V DC-in
- Wide temperature -20 to 70°C (-40 to 70°C optional)
- Ultra slim design (H: 51.0 mm)

Specifications

System

CPU Type	Intel® Atom™ N455 1.66 GHz
Chipset	Intel® ICH8M
Memory Type	1 x 204-pin SO-DIMM DDR3 800 MHz up to 2 GB
BIOS	AMI® BIOS
Expansion Slot	1 x Mini PCIe slot
Ethernet	2 x RTL8111DL GbE LAN
Storage	1 x 2.5" SATA HDD/SSD drive bay 1 x external CF socket

Front I/O

USB	4
COM	4 x RS232 COM2~4 with 5V/12V selectable
Power Button	Yes
Power LED	Yes
HDD LED	Yes
Audio	Mic-in, Line-out

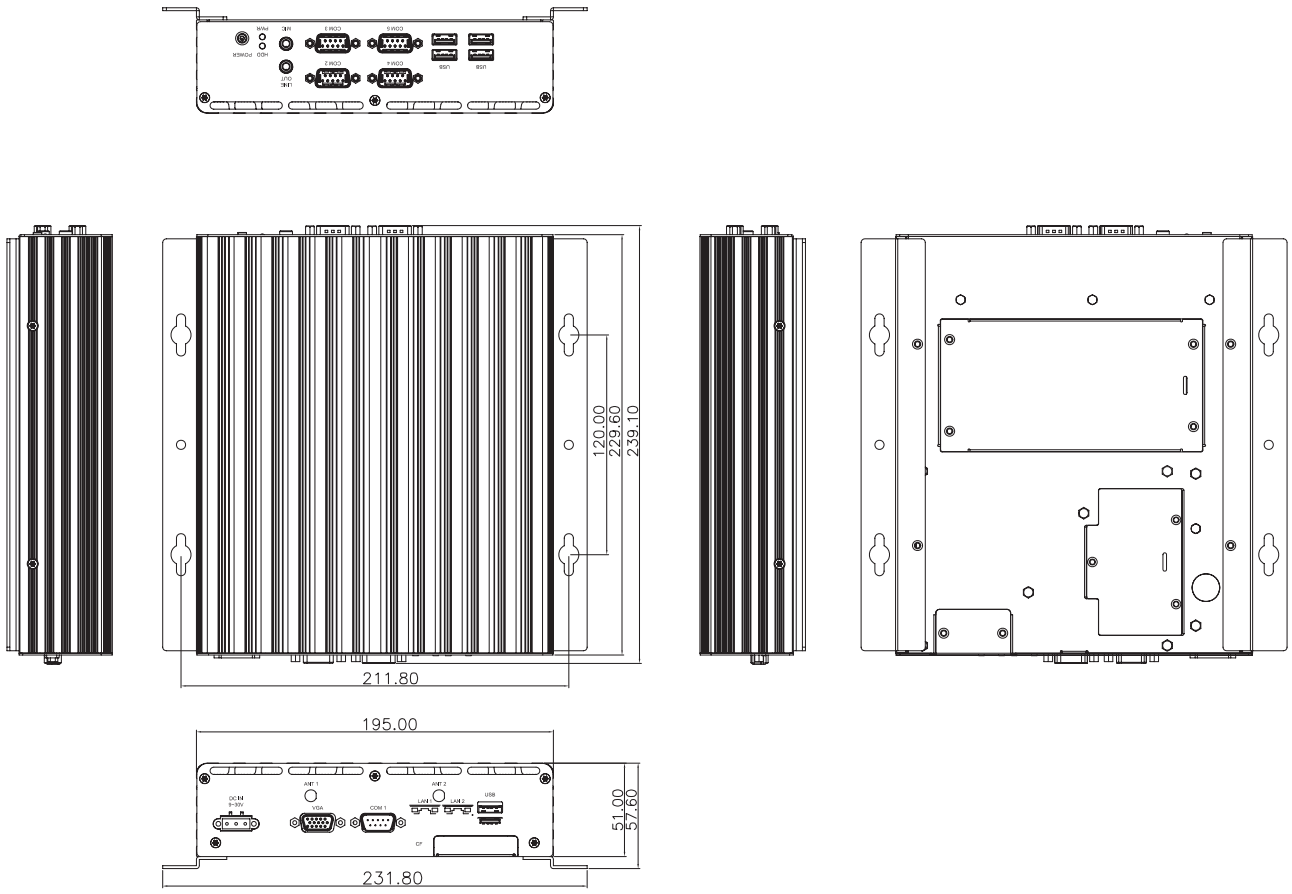
Rear I/O

VGA	1
Ethernet	2 x RJ45
USB	2
COM	1 x RS232/422/485 with 5V/12V selectable
Antenna	Reserved two antenna holes
Power Input	9V to 30V DC-in (By terminal block)
CF Socket	1

Mechanical & Environment

Construction	Aluminum chassis with fanless design
Power Requirements	9V to 30V DC-in
Dimension (W x H x D)	195 x 51 x 230 mm (7.7" x 2" x 9")
Operating Temp.	-20 to 70°C (ambient with air flow)
Storage Temp.	-40 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- ROC315B Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

12V, 60W, AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
ROC315B-ET	Fanless Rugged System with Intel® Atom™ N455 CPU, VGA, Dual GbE LAN, Audio, 5 x COM, 6 x USB, and 9V~30V DC-in (-20 to 70°C)
ROC315B-UT	Rock Box, Fanless Rugged System with Intel® Atom™ N455 CPU onboard, VGA, Dual GbE LAN, Audio, 5 x COM, 6 x USB, and 9V~30V DC-in (-40 to 70°C, optional)

ROC114A

Intel® Tunnel Creek E660T, Wide Temp. Fanless Rugged System with CAN Bus, Wide Temp. -20 to 70°C (-40 to 70°C optional)

Main Features

- Supports Intel® E660T (Tunnel Creek, 1.30 GHz)
- 1GB DDR2 667/800MHz Memory IC onboard
- Supports CF card
- 2 x COM ports
- 1 x CAN BUS port (DB-9 male)
- Dual Intel® GbE LAN ports
- 12V DC-in (lockable)
- Wide temperature -20 to 70°C (-40 to 70°C optional)
- Ultra Slim Design (H: 40 mm)

Specifications

System

CPU Type	Intel® Atom™ E660T 1.3 GHz
Chipset	Intel® EG20T
Memory Type	1GB DDR2 667/800 MHz memory IC onboard
BIOS	AMI® BIOS
Expansion Slot	1 x Mini PCIe slot (half-size)
Ethernet	2 x Intel® 82574IT GbE LAN
Storage	1 x CF socket

Front I/O

USB	2
COM	1 x RS232/422/485 with 5V/12V selection
Ethernet	2 x RJ45
CAN Bus	1 x CAN Bus port (DB-9 male)
VGA	1
Power Button	Yes
Power LED	Yes
HDD LED	Yes

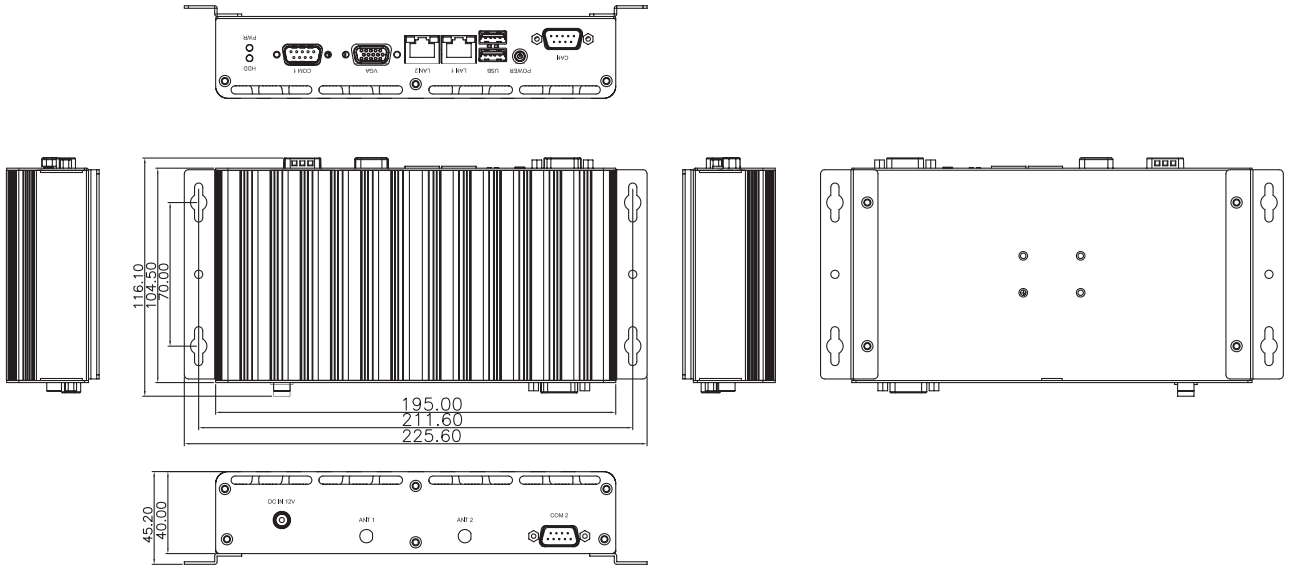
Rear I/O

COM	1 x RS232
Antenna	Reserved two antenna holes
Power Input	12V DC-in

Mechanical & Environment

Construction	Aluminum chassis with fanless design
Power Requirements	12V DC-in (lockable)
Dimension (W x H x D)	105 x 40 x 195 mm (4.13" x 1.57" x 7.7")
Operating Temp.	-20 to 70°C (ambient with air flow)
Storage Temp.	-40 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- ROC114A Fanless Rugged System
- Driver CD

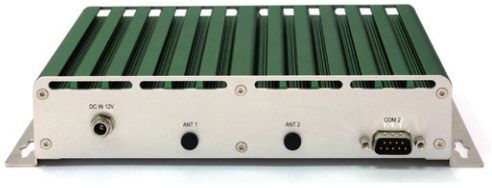
Optional Accessories

Power Adapter

12V, 60W, AC/DC power adapter w/o power cord

Mounting Kit

DIN Rail Bracket



Ordering Information

Modules

Model Number	Description
ROC114A-ET	Fanless Rugged System with Intel® Atom™ E660T CPU onboard, VGA, Dual GbE LAN, 2 x COM, 1 x CAN Bus, 2 x USB, and 12V DC-in (-20 to 70°C)
ROC114A-UT	Fanless Rugged System with Intel® Atom™ E660T CPU onboard, VGA, Dual GbE LAN, 2 x COM, 1 x CAN Bus, 2 x USB, and 12V DC-in (-40 to 70°C, optional)

PER35A

Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7 Processor, 9V to 24V DC-in, Wide Temp. -20 to 55°C

Main Features

- Supports Intel® 22nm Ivy Bridge Processor (Mobile, rPGA988)
- 2 x DDR3 SO-DIMM up to 16 GB
- Supports 2.5" SATA HDD/SSD & CF-SATA socket
- 5 x COM ports
- 4 x USB 3.0
- Dual GbE LAN ports
- 9V ~ 24V DC-in

Specifications

System

CPU	Intel® 22nm Ivy Bridge Processor (Mobile) socket (rPGA988)
Chipset	Intel® QM77
Memory	2 x 204-pin SO-DIMM DDR3 1333/1600 MHz up to 16 GB
Expansion Slot	1 x Mini-PCIe1
Storage Device	1 x 2.5' SATA HDD/SSD 1 x CFast socket

Front I/O

Power Button	Yes
Power LED	Yes
HDD LED	Yes

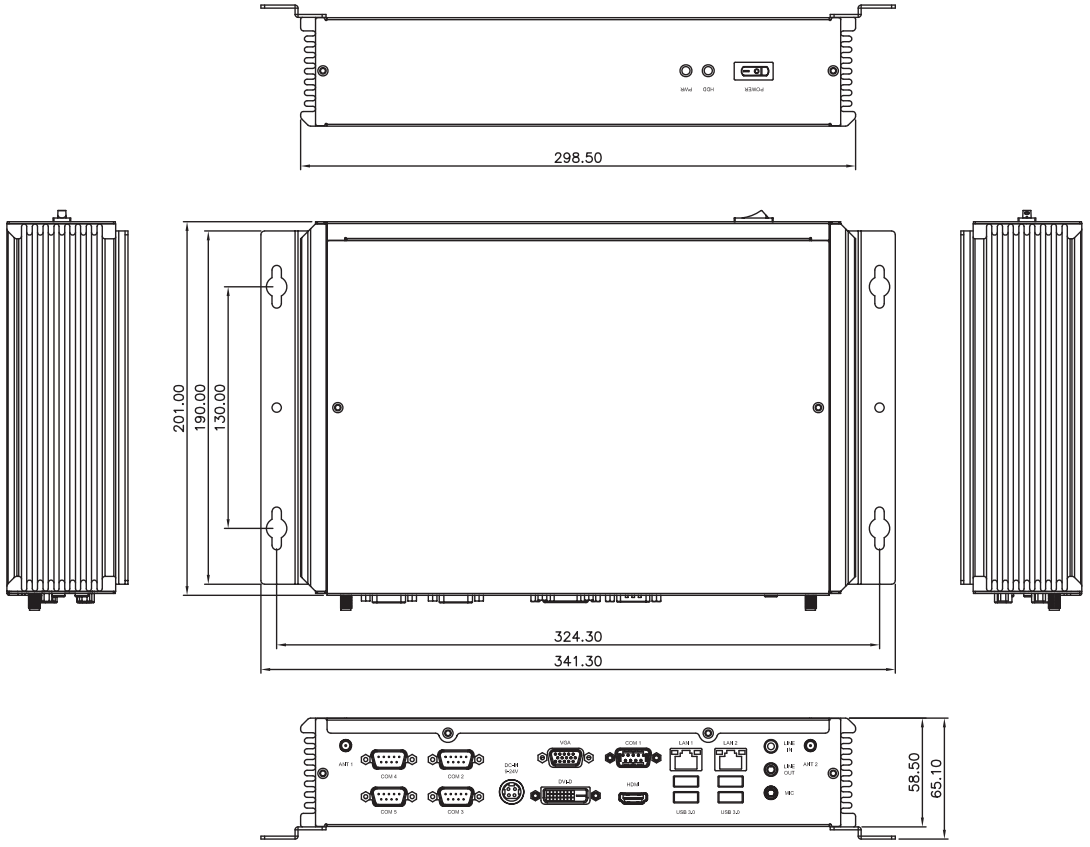
Rear I/O

VGA	1
DVI-D	1
HDMI	1
Ethernet	2 x RJ45
Audio	Mic-in, Line-in, Line-out
COM	1 x RS232/422/485 4 x RS232
USB	4 x USB 3.0
Antenna	Reserved two antenna holes
DC-Jack	1

Mechanical & Environment

Power Requirement	9V to 24V DC-in
Dimension (W x H x D)	299 x 59 x 201 mm (11.77" x 2.3" x 7.91")
Operating Temp.	Ambient with air flow: -20 to 55°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- PER35A Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

19V, 120W AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
PER35A-ET	Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7 Processor, 9V to 24V DC-in (-20 to 55°C)
PER35A-UT	Intel® QM77 Fanless Rugged System with Intel® Ivy Bridge Core™ i7 Processor, 9V to 24V DC-in (-40 to 55°C)

PER33A

Intel® Core™ i7/ i5 Fanless Rugged System with Intel® QM57 Chipset, 9V to 30V DC-in

Main Features

- Supports Intel® Core™ i7/ i5 socket processor
- Mobile Intel® QM57 PCH
- Dual Intel® GbE LAN ports
- Dual VGA or VGA/DVI independent display
- 3 x RS232 and 1 x RS232/ 422/ 485
- 8-bit DIO (4 in/4 out)
- 1x PCI, 1x PCIe expansion slots
- DC/DC power design supports 9V to 30V DC power input

Specifications

System

CPU	Intel® Core™ i7-620M PGA Processor (2.66 GHz, 4M) Intel® Core™ i5-520M PGA Processor (2.4 GHz, 3M) Intel® P4500 PGA Processor (1.86 GHz, 2M)
Chipset	Optional Intel® QM57
Memory	2 x 240-pin memory DIMM, up to 4 GB DDR3 800/1066 MHz SDRAM, unbuffered and non-ECC
Expansion Slot	1 x PCI 1 x PCIe
Storage Device	2 x 2.5" HDD driver bay

Front I/O

USB Port	2 x USB 2.0 1 x lockable USB 2.0
eSATA	2
ATX Power Switch	Yes
Power LED	Yes
HDD LED	Yes

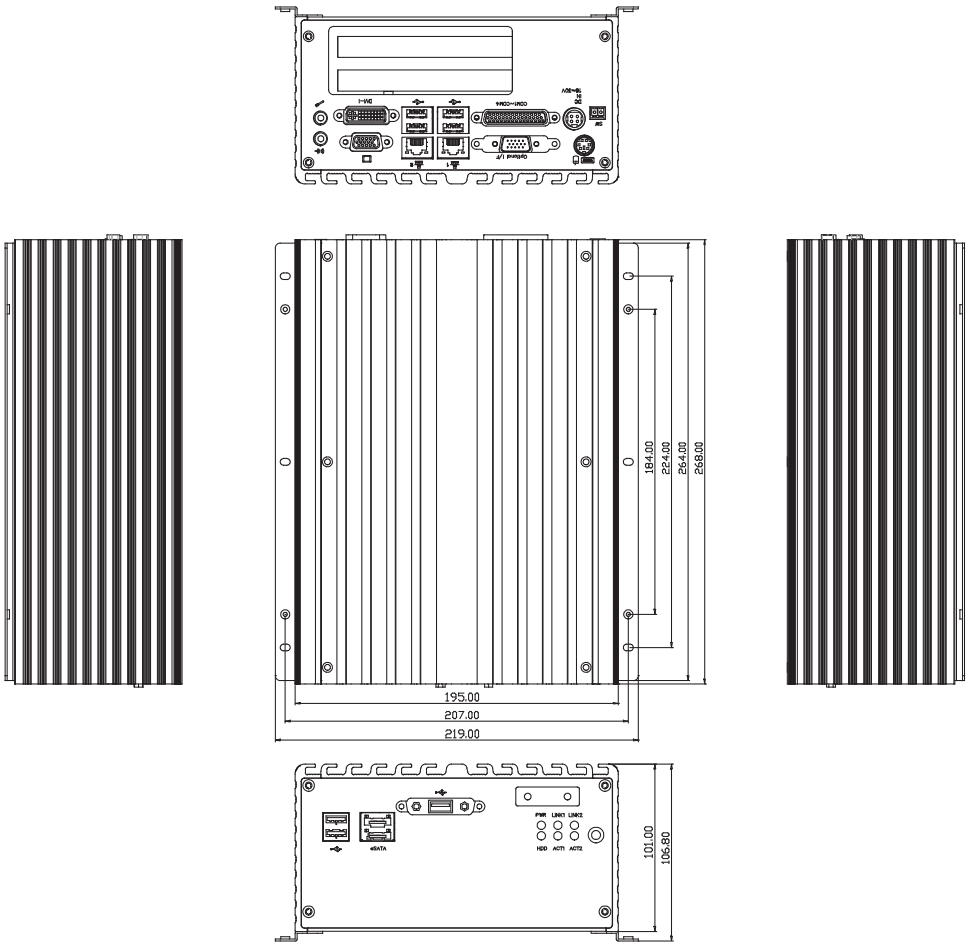
Rear I/O

VGA	1
DVI-I	1
COM	1 x DB44 Serial Port for 4 x RS232 *COM2: RS232/422/485
USB	4 x USB 2.0
Etherent	2 x RJ45
Power Switch	2-pin remote power on/off switch
Power Input	9~30V DC-in
DIO	1 x DB15 male connector for GPIO *4 x digital-input *4 x digital-output
Keyboard/Mouse	1 x PS/2

Mechanical & Environment

Power Requirement	9V to 30V DC-in
Dimension (W x H x D)	195 x 101 x 268 mm (7.7" x 10.5" x 3.98")
Operating Temp.	Ambient with air flow: -5 to 55°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- PER33A Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

19V, 120W AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
PER33A	Intel® Core™ i7/ i5 Fanless Rugged System with VGA, DVI-I, eSATA, and two expansion slots

PER21A

Intel® Cedarview D2550 Fanless Rugged System, 9V to 36V DC-in

Main Features

- Supports Intel® Atom™ D2550 Dual Core™ 1.86 GHz
- 1 x DDR3 SO-DIMM up to 4 GB
- Dual Intel® GbE LAN ports
- 6 x USB 2.0 ports
- 4 x COM ports (2 x RS232, 2 x RS232/422/485)
- 1 x external CFast socket
- 1 x Mini PCIe
- Supports 9V to 36V DC-in

Specifications

System

CPU	Intel® Atom™ D2550 Dual Core™ 1.86 GHz
Chipset	Intel® NM10
Memory	1 x 204-pin SO-DIMM DDR3 800/1066 MHz up to 4 GB
Expansion Slot	1 x Mini-PCIe1
Storage Device	1 x 2.5" SATA HDD/SSD 1 x external CFast socket

Front I/O

COM	2 x RS232 2 x RS232/422/485
Audio	Speaker-out, Mic-in
USB	2 x USB 2.0
Antenna	Reserved two antenna holes
Power Button	1

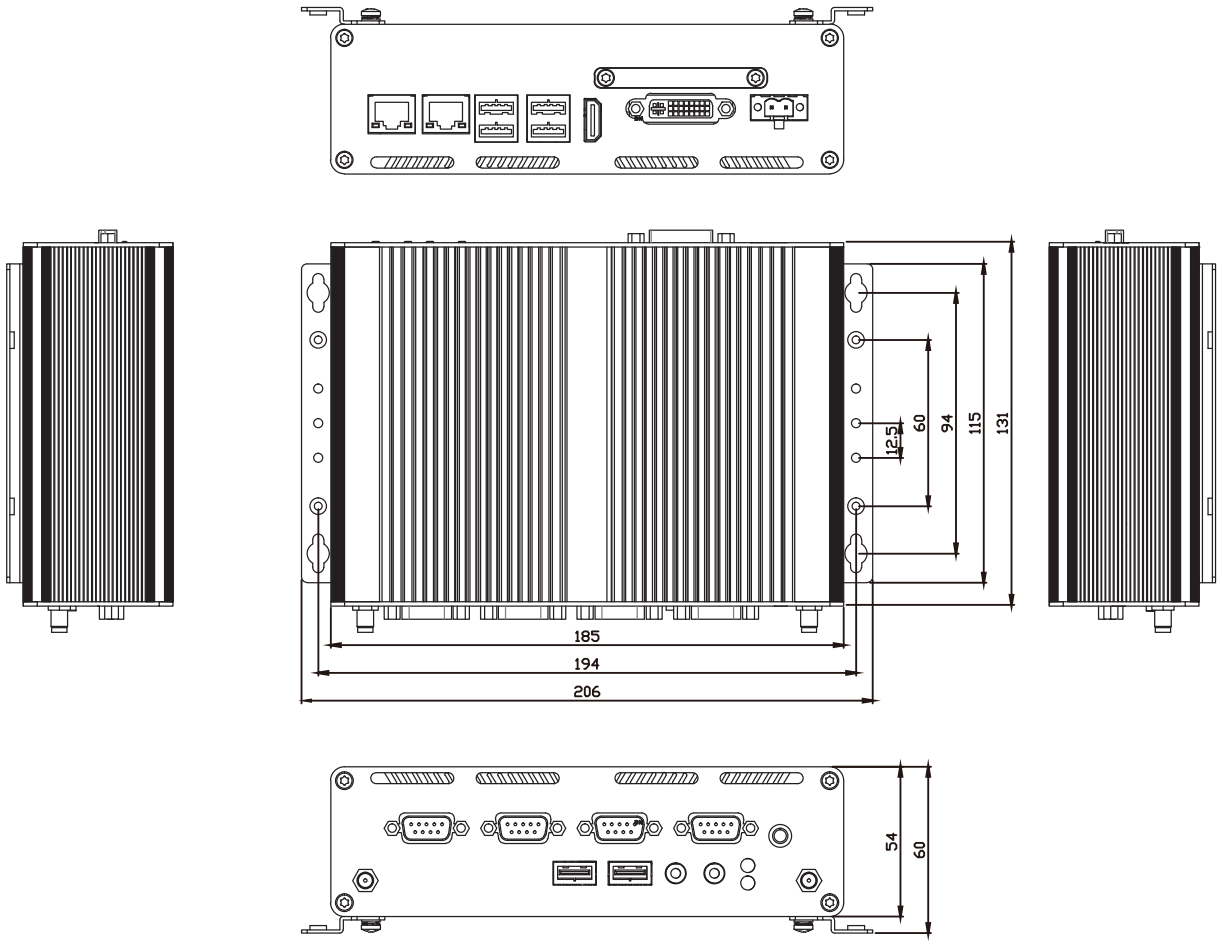
Rear I/O

HDMI	1
DVI-I	1
CFast Socket	1
Etherent	2 x RJ45
USB	4 x USB 2.0
Power Input	9V to 36V DC-in

Mechanical & Environment

Power Requirement	9V to 36V DC-in
Dimension (W x H x D)	185 x 131 x 54 mm (7.28" x 5.2" x 2.13")
Operating Temp.	Ambient with air flow: -5 to 55°C
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- PER21A Fanless Rugged System
- DVI-I Cable
- Driver CD

Optional Accessories

Power Adapter

12V, 60W AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
PER21A	Fanless Rugged System with Intel® Atom™ D2550 CPU, DVI-I, HDMI, Dual Intel® GbE LAN, Audio, 4 x COM, 6x USB, and 9V to 36V DC-in

PER13A

Intel® Atom™ D525, Wide Temp. Fanless Rugged System, 9V to 30V DC-in

Main Features

- Supports Intel® Atom™ D525 Dual Core™ 1.8 GHz
- 1 x DDR3 SO-DIMM up to 2 GB memory
- Dual Intel® GbE LAN ports
- 5 x USB 2.0 ports
- 6 x COM ports (4 x RS-232; 2 x RS-232/422/485)
- 1 x DB15 GPIO connector
- 1 x external CF socket and one external SIM card holder
- 1 x PCI expansion slot; 1 x Mini PCIe
- Supports 9V to 36V DC-in

Specifications

System

CPU	Intel® Atom™ D525 Dual Core™ 1.8 GHz
Chipset	Intel® ICH8M
Memory	1 x 204-pin SO-DIMM, DDR3 800 MHz non-ECC, up to 2 GB
Expansion Slot	1 x PCI 1 x Mini-PCIe socket
Storage Device	1 x 2.5" SATA HDD/SSD drive bay 1 x External CF socket

Front I/O

COM	2 x RS-232
USB	2 x USB 2.0 1 x lockable USB
DIO	1 x DB15 GPIO connector
Power Status LEDs	Yes
Antenna	Reserved two antenna holes
External SIM Card Holder	1
CF Socket	1

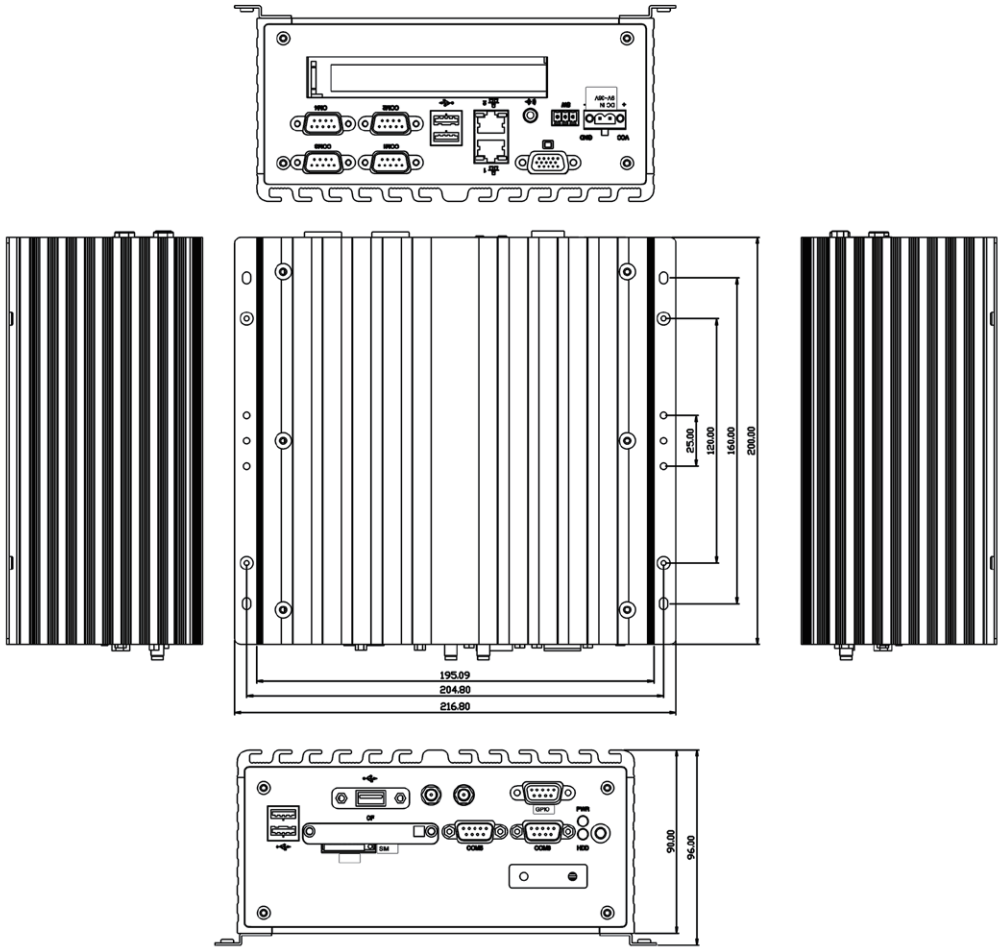
Rear I/O

USB	2
VGA	1
Etherent	2 x RJ45
COM	4
	2 x RS-232 2 x RS-232/422/485 with auto-flow control, solation protection on COM1 and COM2
Power Switch	1 x 3-pin for remote power on/off switch
Power Input	9V to 36V DC-in
Audio	1 x Speaker-out

Mechanical & Environment

Power Requirement	9V to 30V DC-in
Dimension (W x H x D)	195 x 90 x 200 mm (7.7" x 3.5" x 7.9")
Operating Temp.	-20 to 70°C (with industrial grade devices)
Storage Temp.	-20 to 80°C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- PER13A Fanless Rugged System
- Driver CD

Optional Accessories

Power Adapter

9V, 65W AC/DC power adapter w/o power cord

Ordering Information

Modules

Model Number	Description
PER13A	Intel® Atom™ D525 1.8 GHz Fanless Rugged System with DDR3 SO-DIMM socket, and one PCI expansion

PER13C

Intel® Atom™ D525 Fanless Rugged System, 12V DC-in

Main Features

- Supports Intel® Atom™ D525 Dual Core™1.8 GHz
- Supports 1 x 2.5" SATA HDD and SSD
- 5 x COM ports with 5/12V selectable
- Dual GbE LAN ports
- 1 x VGA port
- 1 x Parallel port (DB25 female)
- DC 12V in/out
- 1 x RJ11
- 1 x Mini PCIe

Specifications

System

CPU	Intel® Atom™ D525 Dual Core™ 1.8 GHz
Chipset	Intel® ICH8M
Memory	1 x 204-pin SO-DIMM DDR3 800 MHz up to 4 GB
Expansion Slot	1 x Mini PCIe slot
Storage Device	1 x 2.5" SATA HDD/SSD drive bay

Front I/O

USB Port	1
Power Button	Yes
Power LED	Yes
HDD LED	Yes

Rear I/O

VGA	1
COM	5 x RS232 with 5/12V selectable
USB	4
Ethernet	2 x RJ45
DC-Jack Connector	DC Output: 1 x 12V DC Jack 2.5 mm
Parallel	1 (DB25 female)
Cash Drawer	1 x RJ11(12V)
Keyboard/Mouse	1 x PS/2
Audio	Mic-in, Line-out
WLAN Antenna	Reserved 1 antenna hole

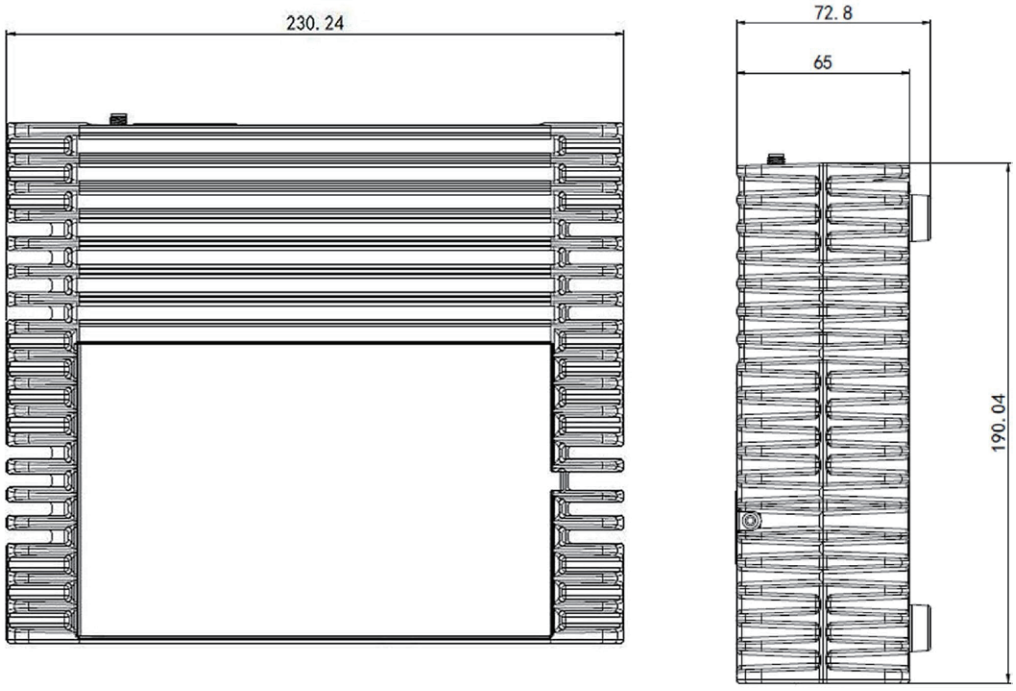
Power Supply

DC Output	12V, 5A
AC Input	100-240V, 1.5A, 50-60 Hz

Mechanical & Environment

Power Requirement	12V DC-in
Dimension (W x H x D)	190 x 65 x 230 mm (7.48" x 2.56" x 9")
Operating Temp.	0 to 50˚C
Storage Temp.	-10 to 55˚C
Relative Humidity	10% to 90%, non-condensing
Certifications	CE, FCC

Dimensions



Packing list

- PER13C Fanless Embedded System
- Power adapter
- Driver CD

Ordering Information

Modules

Model Number	Description
PER13C	Intel® Atom™ D525 1.8 GHz Fanless Rugged System with DDR3 SD-DIMM, VGA, Dual GbE LAN, 5 x COM ports, 5 x USB, LPT, RJ11, DC 12V in/out

SK701

60W DC/DC Converter Module with 9V to 36V Input 12V Output, Wide Temp. -20 to 70°C (-40 to 85°C optional)

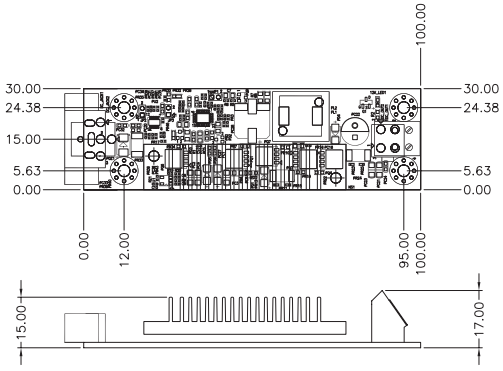
Main Features

- Wide Input Range: 9V to 36V DC
- 12V DC Output up to 5 Amp
- Over voltage protection
- Over current protection
- Surge protection
- Hot swap/Live insertion
- Compact size
- Efficiency: Min. 92%
- Supports wide operating temp. -20 to 70°C (-40 to 85°C optional)

Specifications

Input Voltage	9V to 36V
Output	60W, 12V @ 5 A
Performance Characteristic	Ripple: <300m Line Regulation: <100 mV Load Regulation: <100 mV Efficiency: Min. 92%
Operation Temperature	-20 to 70°C
Dimension	100(W) x 30(L) mm

Dimensions



Input/Output Connector

Voltage Input

Pin Number	Assignment
1	GND
2	9V to 36V DC-in
3	GND

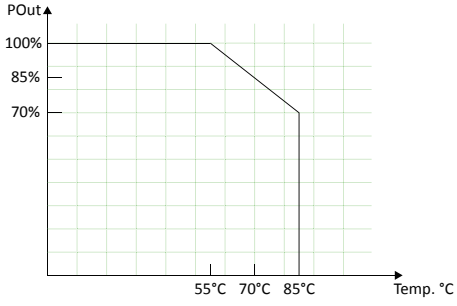
Voltage Outupt

Pin Number	Assignment
1	12V
2	GND

Ordering Information

Modules

Model Number	Description
SK701-ET	60W DC/DC Converter Module with 9V to 36V Input 12V Output (-20 to 70°C)
SK701-UT	60W DC/DC Converter Module with 9V to 36V Input 12V Output (-40 to 85°C optional)



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